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Unit 7: Multiplication and Division

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Fraction Cards Activity Sheet 8
Product Patterns

Math Message
Complete the facts. Do not use the Multiplication/Division Facts Table.

1. 1 × 1 = ______
2. 2 × 2 = ______
3. 3 × 3 = ______
4. 4 × 4 = ______
5. 5 × 5 = ______
6. 6 × 6 = ______
7. 7 × 7 = ______
8. 8 × 8 = ______
9. 9 × 9 = ______
10. 10 × 10 = ______

A Two’s Product Pattern
Multiply. Look for patterns.

11. 2 × 2 = ______
12. 2 × 2 × 2 = ______
13. 2 × 2 × 2 × 2 = ______
14. 2 × 2 × 2 × 2 × 2 = ______
15. 2 × 2 × 2 × 2 × 2 × 2 × 2 = ______

Challenge
Use the Two’s Product Pattern for Problems 11–15. Multiply.

16. 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 = ______
2. In the number 5,627,043:
The 4 means
_________________
4 tens
the 6 means
_________________
the 7 means
_________________
the 5 means
_________________

3. Use the “about 3 times” circle rule:
For any circle, the circumference is
about 3 times the diameter.

<table>
<thead>
<tr>
<th>diameter</th>
<th>circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 cm</td>
<td></td>
</tr>
<tr>
<td>9 cm</td>
<td>21 cm</td>
</tr>
</tbody>
</table>

4. Use your calculator.

<table>
<thead>
<tr>
<th>Enter</th>
<th>Change to</th>
<th>How?</th>
</tr>
</thead>
<tbody>
<tr>
<td>469</td>
<td>1,469</td>
<td></td>
</tr>
<tr>
<td>1,059</td>
<td>859</td>
<td></td>
</tr>
<tr>
<td>23,672</td>
<td>23,972</td>
<td></td>
</tr>
<tr>
<td>46,555</td>
<td>55,555</td>
<td></td>
</tr>
</tbody>
</table>

5. What number is 90 more than 487?

__________

What number is 357 less than 608?

__________

6. 7 baskets. 9 apples per basket.
How many apples in all?

__________ apples

8 cakes. 8 candles per cake.
How many candles in all?

__________ candles
## Multiplication/Division Facts Table

<table>
<thead>
<tr>
<th>×, ÷</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<td>3</td>
<td>4</td>
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<td>6</td>
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<td>4</td>
<td>6</td>
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<td>27</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
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<td>28</td>
<td>32</td>
<td>36</td>
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<td>60</td>
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<td>49</td>
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<td>18</td>
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<td>90</td>
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<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>
1. Draw the lines of symmetry.

There are ____ lines of symmetry.

2. The degree measure of the angle is:

   0 less than 90°
   0 less than 180°
   0 more than 180°
   0 160°


   \[ 6 \times 6 = ____ \]
   \[ 7 \times 7 = ____ \]
   \[ 8 \times 8 = ____ \]
   \[ 81 = ____ \times ____ \]
   \[ 100 = ____ \times ____ \]

4. Write the number that has
   9 in the thousandths place
   7 in the ones place
   3 in the tenths place
   6 in the hundredths place

   ____ \cdot ____ ____ ____

5. Figure out this riddle.

   I have four sides. My opposite sides are equal in length. I have two pairs of parallel sides. I do not have any right angles.

   What shape am I?

   ________________________

6. Rectangle HFCD is a(n) ____-by-____ rectangle.

   The area of rectangle HFCD:

   ____ \times ____ = ____ square units.
Read the rules for *Multiplication Bingo* on pages 218 and 219 in the *Student Reference Book*.

Write the list of numbers on each grid below.

**List of numbers**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>18</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>20</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>8</td>
<td>16</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>

Record the facts you miss. Practice them in your spare time.
Multiplication/Division Practice

Fill in the missing number in each Fact Triangle. Then write the fact family for the triangle.

1.

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

\[ \begin{array}{ccc}
\times, \div & 8 & 6 \\
\end{array} \]

Complete each puzzle.

**Example**

\[ \begin{array}{ccc}
\times, \div & 3 & 5 \\
4 & 12 & 20 \\
6 & 18 & 30 \\
\end{array} \]

3.

\[ \begin{array}{ccc}
\times, \div & 2 & 6 \\
3 & 6 \\
\end{array} \]

4.

\[ \begin{array}{ccc}
\times, \div & 3 & 5 \\
2 & 8 \\
\end{array} \]

5.

\[ \begin{array}{ccc}
\times, \div & 7 & 9 \\
2 \\
5 \\
\end{array} \]

6.

\[ \begin{array}{ccc}
\times, \div & 4 \\
3 & 9 & 4 \\
\end{array} \]

7.

\[ \begin{array}{ccc}
\times, \div & 6 \\
2 & 24 & 36 \\
\end{array} \]
1. This is a picture of a cube. What do you know about this shape?

2. In the number 5,431,098:
   - the 3 means ________
   - the 4 means ________
   - the 9 means ________
   - the 5 means ________
   - the 1 means ________

3. Fill in the unit box. Then multiply.
   \[8 \times 2 = \_
   \]
   \[4 \times 9 = \_
   \]
   \[6 \times 7 = \_
   \]
   \[\_
   \equiv 8 \times 9
   \]
   \[\_
   \equiv 7 \times 8
   \]

4. Draw and label a pair of parallel lines. Draw and label a pair of intersecting rays.

5. Add.
   \[
   \begin{array}{ccc}
   349 & + & 777 \\
   + & 956 & + 1,028 \\
   & & + 3,842 \\
   \end{array}
   \]

6. Maxwell has $806 in the bank. Madison has $589. How much more money does Maxwell have than Madison?
   \[\_
   \]
Number Models with Parentheses

Solve the number story. Then write a number model using parentheses.

1. Amy scored 12 points and Yosh scored 6 points. If their team scored 41 points, how many points did the rest of the team score?

Number model: ________________________________

2. In a partner game, Tim has 10 points and Ellen 14 points. They need 50 points to finish the game. How many more points are needed?

Number model: ________________________________

3. Once Tim and Ellen got 50 points, but lost 14 points for a wrong move. They gained 10 points back. What was their final score?

Number model: ________________________________

Add parentheses to complete the number models.

4. 20 \(-\) 10 + 4 = 6
5. 20 \(-\) 10 + 4 = 14
6. 100 \(-\) 21 + 10 = 69
7. 100 \(-\) 21 + 10 = 89
8. 27 \(-\) 8 + 3 = 22
9. 18 = 6 + 3 \times 4
10. 5 \times 9 \(-\) 2 = 35
11. 51 = 43 + 15 \(-\) 7

Complete these number models.

12. ______ = 8 + (9 \times 3)
13. (75 \(-\) 29) + 5 = ______
14. 36 + (15 \div 3) = ______
15. ______ = (8 \times 8) \(-\) 16
1. Fill in the blanks for this $\times, \div$ puzzle.

\[
\begin{array}{|c|c|}
\hline
\times, \div & 5 \\
8 & \\
45 & 63 \\
\hline
\end{array}
\]

2. Subtract.

\[
\begin{array}{r}
926 \\
- 538 \\
\hline
388 \\
\end{array}
\begin{array}{r}
1,045 \\
- 471 \\
\hline
574 \\
\end{array}
\begin{array}{r}
4,531 \\
- 2,628 \\
\hline
1,903 \\
\end{array}
\]

3. Solve.

\[
\begin{align*}
49 \div 7 &= \\
81 \div 9 &= \\
&= 64 \div 8 \\
6 &= 36 \div \\
&= 5
\end{align*}
\]

4. 1st grade collected 545 pop cans. 2nd grade collected 766 pop cans. 3rd grade collected 802 pop cans.

How many in all?

\[
\text{_______} \text{ pop cans}
\]

5. Draw a parallelogram. Label the vertices so that $AB \parallel CD$. The symbol $\parallel$ means “is parallel to.”

6. How many children like green? \______ children

How many children in all responded to the question? \______ children

**Favorite Color** | **Number of Children**
--- | ---
blue | \\
red | \\
green | \\
other | \\
... | ...
Scoring 10 Basketball Points

Find different ways to score 10 points in a basketball game.

<table>
<thead>
<tr>
<th>Number of 3-point baskets</th>
<th>Number of 2-point baskets</th>
<th>Number of 1-point baskets</th>
<th>Number models</th>
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<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>0</td>
<td>((2 \times 3) + (2 \times 2) + (0 \times 1) = 10)</td>
</tr>
</tbody>
</table>

Use with Lesson 7.5.
Multiplication and Division Practice

Fill in the missing number in each Fact Triangle. Then write the fact family for the triangle.

1.  
   \[ \begin{array}{ccc}
   & \times, \div & \\
   4 & & 8 \\
   \end{array} \]
   
   _______________________

2.  
   \[ \begin{array}{ccc}
   & \times, \div & \\
   6 & & \_
   \\
   \end{array} \]
   
   _______________________

3.  
   \[ \begin{array}{ccc}
   & \times, \div & \\
   8 & & 7 \\
   \end{array} \]
   
   _______________________

4.  
   \[ \begin{array}{ccc}
   & \times, \div & \\
   & & 9 \\
   \end{array} \]
   
   _______________________

5. Circle the Fact Triangle above that shows a square product.

Fill in the tables and find the missing rule.

6.  
   \[ \begin{array}{c|c|c}
   \text{in} & \text{out} & \\
   \hline
   3 & & 24 \\
   7 & & 56 \\
   8 & & \\
   4 & & 72 \\
   \end{array} \]

7.  
   \[ \begin{array}{c|c|c}
   \text{in} & \text{out} & \\
   \hline
   5 & & 45 \\
   8 & & 72 \\
   9 & & 27 \\
   & & 36 \\
   \end{array} \]

Use with Lesson 7.5.
Math Boxes 7.5

1. This drawing shows a rectangular prism.
   
   How many faces does it have? _____ faces
   
   How many edges? _____ edges
   
   How many vertices? _____ vertices

2. Write the number that has
   9 in the ten-thousands place
   4 in the millions place
   2 in the hundreds place
   5 in the thousands place
   0 in all of the other places

   __, __, __, __, __

3. Solve.
   
   \[ 8 \times 4 = \_
   
   \[ 9 \times 2 = \_
   
   \[ \_
   
   \[ 7 \times 8
   
   \[ 4 \times 9 = \_
   
   \[ 6 \times 8 = \_

4. The degree measure of the angle is
   
   0 less than 40°
   
   0 more than 100°
   
   0 more than 180°
   
   0 90°

5. Fill in the unit box.
   Then solve.
   
   \[ (6 \times 3) + 2 = \_
   
   \[ 29 - (20 + 3) = \_
   
   \[ \_
   
   \[ 14 + (3 + 3)
   
   \[ \_
   
   \[ (5 \times 5) - 6

6. Forty markers are divided equally into 8 packages.
   
   How many markers are in each package? _____ markers
   
   How many markers are left over? _____ markers
Extended Multiplication and Division Facts

Write the number of 3s in each each number.

1. How many 3s in 30? _______
2. How many 3s in 300? _______
3. How many 3s in 3,000? _______
4. How many 3s in 12? _______
5. How many 3s in 120? _______
6. How many 3s in 1,200? _______

Solve each $\times, \div$ puzzle. Fill in the blanks.

**Example**

<table>
<thead>
<tr>
<th>$\times, \div$</th>
<th>300</th>
<th>2,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>600</td>
<td>4,000</td>
</tr>
<tr>
<td>3</td>
<td>900</td>
<td>6,000</td>
</tr>
</tbody>
</table>

7. $\times, \div$

<table>
<thead>
<tr>
<th>60</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>300</td>
</tr>
</tbody>
</table>

8. $\times, \div$

<table>
<thead>
<tr>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td></td>
</tr>
<tr>
<td>8,000</td>
<td></td>
</tr>
</tbody>
</table>

9. $\times, \div$

<table>
<thead>
<tr>
<th>1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
</tr>
<tr>
<td>6,000</td>
</tr>
</tbody>
</table>

Solve each number story.

10. A 30-minute television program has two 60-second commercials at the beginning and two at the end. There are also four 30-second commercials in the middle of the program. How long is the actual program?

_____ minutes

11. During a 40-minute basketball game, each team is allowed four 60-second timeouts and two 30-second timeouts. If both teams use all of their timeouts, how many minutes of timeouts will there be?

_____ minutes
1. Write in the missing numbers.

\[ \times, \div \quad 6 \]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>54</td>
<td></td>
</tr>
</tbody>
</table>

2. Give two reasons that this shape is a regular polygon.

- Reason 1:
- Reason 2:


\[ 5 \times 5 = \underline{25} \]

\[ \underline{49} = 7 \times 7 \]

\[ \underline{81} = 9 \times 9 \]

\[ 8 \times 8 = \underline{64} \]

\[ 6 \times 6 = \underline{36} \]

4. Draw and label 3 parallel line segments. Draw and label a line that intersects all 3 line segments.

5. Draw the lines of symmetry.

There are ____ lines of symmetry.

6. In the number 42.368:

- The 3 means _____
- The 2 means _____
- The 8 means _____
- The 6 means _____
- The 4 means _____
Stock-Up Sale Record

Use the items on pages 240 and 241 in your Student Reference Book.

Round 1:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________

Round 2:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________

Round 3:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________

Round 4:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________

Round 5:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________

Round 6:
Item to be purchased: __________
How many? __________________
Regular or sale price? __________
Price per item: ________________
Estimated cost: ________________
Extended Facts Practice

Solve the calculator puzzles. Use the × or ÷ for each puzzle.

Enter | Change to | How?
--- | --- | ---
1. | 10 | 1,000 | ________
2. | 1,000 | 100 | ________
3. | 100 | 10,000 | ________
4. | 1,000 | 10 | ________
5. | 10,000 | 1,000 | ________

Complete the extended Fact Triangles. Write the extended fact families.

7. \[6 \times, \div 200\]

8. \[2,400 \times, \div \___\]

Solve each ×, ÷ puzzle. Fill in the blanks.

9. \[
\begin{array}{ccc}
\times, \div & 3 & 9 \\
100 & 900 & \\
3,000 & \\
\end{array}
\]

10. \[
\begin{array}{ccc}
\times, \div & 2,000 & \\
4 & 1,200 & \\
& & 10,000 \\
\end{array}
\]

6. Three of the names do not belong in this name-collection box. Cross them out.

\[
\begin{array}{c}
4,000 \\
8 \times 5,000 \quad (500 \times 5) - 500 \\
5,000 - (5 \times 200) \\
(200 \times 4) \times 5 \\
(200 \div 4) \times 8 \\
8,000 \div 2 \quad (2 \times 2) \times 1000 \\
(200 + 200) \times 10 \\
2 \times 2,000 \quad 1,000 \times 4 \\
\end{array}
\]
1. square pyramid

How many faces does it have? ____ faces
How many edges? ____ edges
How many vertices? ____ vertices
What is the shape of the base? ________________

2. Write the number that has
3 in the hundred-thousands place
6 in the thousands place
4 in the ten-thousands place
1 in the millions place
5 in all of the other places

3. Solve.
Fill in the unit box.

\[ 6 \times 9 = ____ \]
\[ ____ = 9 \times 8 \]
\[ ____ = 6 \times 7 \]
\[ ____ = 5 \times 8 \]
\[ 9 \times 7 = ____ \]

4. Solve.

\[ 4 \times 8 = _____ \]
\[ 4 \times 80 = _____ \]
\[ 4 \times 800 = _____ \]
\[ 4 \times 8,000 = _____ \]

5. Complete the number models.

\[ (49 - 19) - 8 = ____ \]
\[ (56 - 14) \times 2 = ____ \]
\[ 48 - (19 - 8) = ____ \]

6. Wilson had 493 coins in his collection. He sold 237 of them. How many coins does Wilson have now?

_______ coins
Math Message
Write the dollar values.

1. \( \$10 \times 10 = \) ______________
2. \( \$100 \times 100 = \) ______________
3. \( \$1,000 \times 1,000 = \) ______________
4. \( \$1000 \times 10 = \) ______________
5. \( \$1000 \times 100 = \) ______________
6. \( \$1000 \times 1,000 = \) ______________

Solve each \( \times, \div \) puzzle. Fill in the blanks.

7. \[
\begin{array}{ccc}
\times, \div & 10 & 100 \\
1 & & \\
10 & & \\
\end{array}
\]

8. \[
\begin{array}{ccc}
\times, \div & 4 & 30 \\
20 & & \\
6 & & \\
\end{array}
\]

9. \[
\begin{array}{ccc}
\times, \div & 40 & 60 \\
20 & & \\
80 & & \\
\end{array}
\]

10. \[
\begin{array}{ccc}
\times, \div & & \\
3 & 150 & \\
70 & 560 & \\
\end{array}
\]

Multiply.

11. \( 5 \times 90 = \) ______________
12. ______________ = \( 70 \times 4 \)
13. \( 10 \times 70 = \) ______________
14. \( 80 \times 60 = \) ______________
15. ______________ = \( 30 \times 50 \)
16. \( 7 \times \) ______________ = \( 420 \)
17. ______________ \( \times 90 = 540 \)
18. ______________ \( \times 600 = 6,000 \)

Challenge

19. No calculators, please! An artist made a square mosaic with 99 rows of tiles and 99 tiles in each row. How many tiles were used? ______________ (unit)
Math Boxes 7.8

1. Fill in the blanks for this \(\times, \div\) puzzle.

<table>
<thead>
<tr>
<th>(\times, \div)</th>
<th>9</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

2. Multiply.

\[
\begin{array}{ccc}
5 & \times 9 & 50 \times 9 & 500 \times 9 \\
3 \times 9 & 30 \times 9 & 300 \times 9
\end{array}
\]

3. Write multiplication names for three different square numbers.

- ____________________________
- ____________________________
- ____________________________

4. The best estimate of \(5,697 + 1,310\) is:

- 0 about 8,100
- 0 about 8,000
- 0 about 7,000
- 0 about 5,901

5. Add parentheses to complete the number models.

\[
\begin{align*}
30 &= 10 \times 2 + 10 \\
46 - 23 - 13 &= 10 \\
4 \div 2 + 6 &= 8
\end{align*}
\]

6. Draw an angle that measures between \(90^\circ\) and \(180^\circ\).
Math Boxes 7.9

1. Number of pets children have:
   0, 4, 0, 1, 1, 3, 6, 2, 5
   Median: _____
   Maximum: _____
   Minimum: _____
   Range: _____

2. Solve.
   \[ 7 \times 8 = \underline{\text{}} \]
   \[ 7 \times 80 = \underline{\text{}} \]
   \[ \underline{\text{}} = 70 \times 80 \]
   \[ 70 \times 8,000 = \underline{\text{}} \]

3. Solve. Fill in the unit box.
   \[ 4 \times 9 = \underline{\text{}} \]
   \[ 2 \times 8 = \underline{\text{}} \]
   \[ \underline{\text{}} = 6 \times 7 \]
   \[ \underline{\text{}} = 5 \times 8 \]
   \[ \underline{\text{}} = 6 \times 9 \]

4. The best estimate of \(3,465 + 2,988\) is:
   0 about 5,000
   0 about 6,000
   0 about 6,500
   0 about 7,000

5. Add parentheses to complete the number models.
   \[ 14 - 7 \times 2 = 14 \]
   \[ 3 \times 6 + 2 = 24 \]
   \[ 7 = 6 + 15 \div 3 \]
   \[ 9 \times 5 + 3 = 72 \]

6. Draw a ray, \(\overrightarrow{AB}\), that is parallel to the line, \(\overrightarrow{CD}\), and intersects the line segment, \(\overrightarrow{EF}\).
1. Circle the pictures in which $\frac{1}{2}$ is shaded.

2. Divide each figure into 4 equal parts.

3. True or false?

$$\frac{1}{3}$$ of the squares are shaded.

4. Divide the triangles into 3 equal groups.

5. Shade $\frac{1}{2}$ of the hexagon.

6. Shade $\frac{1}{2}$ of the balloons.
Math Message
1. Draw an X through \( \frac{2}{3} \) of the circles.

Label each picture with one of the following numbers: 0, \( \frac{1}{4} \), \( \frac{1}{2} \), \( \frac{2}{4} \), or \( \frac{3}{4} \).

2. \( \frac{4}{4} \), or 1

Each whole figure represents ONE. Write a fraction that names each region inside the figure.

6. 
7. 
8. 
9. 
10. 
11. 

Challenge
Each whole figure represents ONE. Write a fraction that names each region inside the figure.

12. 
13.
Fraction Review (cont.)

You need at least 25 pennies or other counters. Use them to help you solve these problems. Share solution strategies with others in your group.

Make a set of 8 counters.

14. Show $\frac{1}{4}$ of a set of 8 counters. How many counters is that? ___

15. Put the counters back. Show $\frac{2}{4}$ of the set. How many counters? ___

16. Put the counters back. Show $\frac{3}{4}$ of the set. How many counters? ___

Make a set of 12 counters.

17. Show $\frac{1}{3}$ of the set. How many counters is that? ___

18. Put the counters back. Show $\frac{2}{3}$ of the set. How many counters? ___

19. Put the counters back. Show $\frac{3}{3}$ of the set. How many counters? ___

20. Show $\frac{1}{5}$ of a set of 15 counters. How many counters is that? ___

21. Show $\frac{4}{5}$ of a set of 15 counters. How many counters is that? ___

22. Show $\frac{3}{4}$ of a set of 20 counters. How many counters is that? ___

23. Show $\frac{2}{3}$ of a set of 18 counters. How many counters? ___

24. Five counters is $\frac{1}{5}$ of a set. How many are in the whole set? ___

25. Six counters is $\frac{1}{3}$ of a set. How many are in the whole set? ___

Challenge

26. Twelve counters is $\frac{3}{4}$ of a set. How many are in the complete set of counters? ______________

27. Pretend that you have 15 “cheese cubes” that can be cut. How many are in $\frac{1}{2}$ of the set of cubes? Use a fraction or decimal in your answer. ______________
Math Boxes 8.1

1. The “about 3 times” circle rule:
   For any circle, the circumference is about 3 times the diameter.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
<tr>
<td>800</td>
<td></td>
</tr>
</tbody>
</table>

2. Solve. Fill in the unit box.
   \[6 \times 8 = \underline{______}\]
   \[9 \times 9 = \underline{______}\]
   \[7 \times 7 = \underline{______}\]
   \[\underline{______} = 8 \times 9\]
   \[\underline{______} = 4 \times 8\]

3. 6,709
   + 844
   Write a number model for your estimate.
   \[\underline{______} + \underline{______} = \underline{______}\]
   Answer: \[\underline{______}\]

4. In the number 3.514:
   the 3 means \[\underline{3 \text{ ones}}\]
   the 1 means 
   the 5 means 
   the 4 means 

5. Complete the number grid puzzle.

6. Fill in the rule box and the frames.

   + 7

\[\underline{______} \underline{920} \underline{930}\]
Fractions with Pattern Blocks

Work with a partner.

Materials
- pattern blocks
- Pattern-Block Template

Part 1
Cover each shape with green \( \triangle \) pattern blocks. What fractional part of each shape is 1 green pattern block? Write the fraction under each shape.

Part 2
Cover each shape with green \( \triangle \) pattern blocks. What fractional part of each shape are 2 green pattern blocks? Write the fraction next to each shape.
Part 3
Cover each shape with blue pattern blocks. What fractional part of each shape is 1 blue pattern block? Write the fraction under each shape. If you can’t cover the whole shape, cover as much as you can. 

**Think:** Is there another block that would cover the rest of the shape?

**Challenge**
Fractions with Pattern Blocks (cont.)

Part 4
Cover each shape with blue pattern blocks. What fractional part of each shape would 2 blue pattern blocks cover? Write the fraction next to each shape.

![Pattern Blocks Shapes]

Part 5
Use your Pattern-Block Template to show how you divided the shapes in each section. *Remember:* The number *under* the fraction bar names the number of equal parts into which the whole shape is divided.

Follow-Up
Get together with the rest of the group.

- Compare your answers.
- Use the blocks to check your answers.
- Can more than one fraction be correct?
Dressing for the Party

Work in a group of four.

Materials
- Math Masters, p. 129 (Pants and Socks Cutouts)
- scissors
- tape
- blue, red, green, and black crayons or coloring pencils

Problem
Pretend that you have 4 pairs of pants: blue, red, green, and black. You also have 4 pairs of socks: blue, red, green, and black. You have been invited to a party. You need to choose a pair of pants and a pair of socks to wear. Of course, both socks must be the same color. For example, the pants could be blue and both socks black.

How many different combinations of these pants and socks are possible?

Strategy
Use the cutouts on Math Masters, page 129, and crayons to help you answer the question.

Decide on a good way for your group to share the following work before you start to answer the question.

- Color the pants in the first row blue.
- Color the pants in the second row red.
- Color the pants in the third row green and those in the fourth row black.
- Color the socks in the same way.
- Cut out each pair of pants and each pair of socks.
- Tape together pairs of pants and pairs of socks to show different outfits. Check that you have only one of each outfit.
Dressing for the Party (cont.)

Pretend that you have 4 different colors of pants and 4 different colors of socks.

1. How many different combinations of pants and socks did your group find? ______________________

2. Is this all of the possible combinations? ______

3. How do you know?
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

4. How did your group divide up the work?
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

5. How did your group solve the problem?
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
1. Circle $\frac{5}{10}$ of the collection of triangles.

\[ \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle \]

Name the fraction that is left in 2 ways.

_____ and _____

2. Number of children per classroom:

25, 30, 26, 28, 33, 35, 28

Median: ____

Maximum: ____

Minimum: ____

Range: ____

3. Put in the parentheses needed to complete the number models.

\[ 31 = 3 + 7 \times 4 \]

\[ 40 = 3 + 7 \times 4 \]

\[ 4 \times 8 + 2 \times 2 = 36 \]

\[ 4 \times 8 + 2 \times 2 = 80 \]

4. Subtract.

\[
\begin{array}{c}
439 \\
-378
\end{array}
\quad \begin{array}{c}
4,666 \\
-1,297
\end{array}
\quad \begin{array}{c}
3,408 \\
-571
\end{array}
\]

5. Fill in the missing numbers.

\[
\begin{array}{c|c|c}
\times, \div & 700 & 60 \\
8 & & \\
& 4,900 \\
\end{array}
\]

6. Complete.

24 inches = _________ feet

30 cm = _________ mm

_______ yards = 12 feet

_______ yards = 72 inches

4 meters = _________ centimeters
<table>
<thead>
<tr>
<th>Fraction Number-Line Poster</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Whole</td>
</tr>
<tr>
<td>Halves</td>
</tr>
<tr>
<td>Fourths</td>
</tr>
<tr>
<td>Eighths</td>
</tr>
<tr>
<td>Thirds</td>
</tr>
<tr>
<td>Sixths</td>
</tr>
</tbody>
</table>

Use with Lessons 8.3 and 8.4.
Math Boxes 8.3

1. Shade $\frac{3}{8}$ of the circle.

What fraction is *un*shaded? ____

2. Fill in the missing numbers.

<table>
<thead>
<tr>
<th>×, ÷</th>
<th>4</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>

3. Measure the line segment to the nearest $\frac{1}{4}$ inch.

__________

Draw a line segment $1\frac{3}{4}$ inches long.

4. Circle the digit in the millions place.

Put an X on the digit in the ten-thousands place.

Put a box around the digit in the hundreds place.

$4,902,567$

5. Draw an angle that measures between $5^\circ$ and $90^\circ$.

6. Write a definition for *parallel*.

_________________________________

_________________________________

_________________________________

Write a definition for *intersect*.

_________________________________
Table of Equivalent Fractions

Use your deck of Fraction Cards to find equivalent fractions. Record them in the table.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Equivalent Fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/2</td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td></td>
</tr>
<tr>
<td>2/2</td>
<td></td>
</tr>
<tr>
<td>1/3</td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td></td>
</tr>
<tr>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td></td>
</tr>
<tr>
<td>1/5</td>
<td></td>
</tr>
<tr>
<td>4/5</td>
<td></td>
</tr>
<tr>
<td>1/6</td>
<td></td>
</tr>
<tr>
<td>5/6</td>
<td></td>
</tr>
</tbody>
</table>

Challenge

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Equivalent Fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td></td>
</tr>
<tr>
<td>5/8</td>
<td></td>
</tr>
<tr>
<td>2/9</td>
<td></td>
</tr>
</tbody>
</table>
Fractions of Sets

What fraction does each picture show? Shade the oval next to each correct answer. There may be more than one correct answer.

1.  \( \frac{1}{4} \)  \( \frac{1}{2} \)  \( \frac{2}{3} \)  \( \frac{6}{6} \)

2.  \( \frac{1}{4} \)  \( \frac{3}{6} \)  \( \frac{6}{6} \)  \( \frac{3}{4} \)

3.  \( \frac{1}{2} \)  \( \frac{6}{1} \)  \( \frac{1}{6} \)  \( \frac{6}{6} \)

4.  \( \frac{4}{6} \)  \( \frac{1}{4} \)  \( \frac{6}{6} \)  \( \frac{2}{3} \)

5.  \( \frac{0}{4} \)  \( \frac{3}{4} \)  \( \frac{1}{2} \)  \( \frac{1}{4} \)

6.  \( \frac{0}{4} \)  \( \frac{3}{4} \)  \( \frac{0}{4} \)  \( \frac{3}{4} \)

7.  \( \frac{0}{4} \)  \( \frac{3}{4} \)  \( \frac{1}{2} \)  \( \frac{1}{4} \)

8.  \( \frac{0}{4} \)  \( \frac{3}{4} \)  \( \frac{1}{2} \)  \( \frac{1}{4} \)

9.  \( \frac{1}{4} \)  \( \frac{1}{2} \)  \( \frac{2}{12} \)  \( \frac{2}{3} \)

10.  \( \frac{3}{4} \)  \( \frac{3}{6} \)  \( \frac{12}{12} \)  \( \frac{12}{12} \)

11.  \( \frac{3}{4} \)  \( \frac{12}{12} \)  \( \frac{0}{12} \)  \( \frac{8}{12} \)

12.  \( \frac{1}{2} \)  \( \frac{12}{12} \)  \( \frac{3}{4} \)
**Math Boxes 8.4**

1. Shade \( \frac{7}{10} \) of the hats.

![Hat Diagram]

2. \[ \begin{array}{c}
3,333 \\
+ 999 \\
\hline
\end{array} \]

Write a number model for your estimate.

\[ \underline{\text{_______}} + \underline{\text{_______}} = \underline{\text{_______}} \]

Answer: \[ \underline{\text{_______}} \]

3. Fill in the missing numbers.

Use fractions.

![Number Line]

\[ \begin{array}{c}
0 \\
\frac{1}{2} \\
1 \\
\hline
\end{array} \]

4. Write \( <, >, \) or \( = \).

\[
\begin{array}{ccc}
0.75 & 0.57 \\
0.09 & 0.9 \\
0.062 & 0.107 \\
12.4 & 14.2 \\
\end{array}
\]

5. Fill in the missing numbers.

\[
\begin{array}{c|c}
\times, \div & 600 \\
50 & 1,500 \\
\hline
& 42,000 \\
\end{array}
\]

6. Measure the line segment to the nearest \( \frac{1}{4} \) inch.

![Line Segment]

Draw a line segment 1 inch long.
Color the Fraction Cat

Color the picture below. Follow the color key. For example, all parts with a fraction equivalent to $\frac{2}{3}$ should be colored orange. So the part with $\frac{4}{6}$ should also be colored orange.

<table>
<thead>
<tr>
<th>Fractions Equal To</th>
<th>Color Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{1}{2}$</td>
<td>yellow</td>
</tr>
<tr>
<td>$\frac{2}{3}$</td>
<td>orange</td>
</tr>
<tr>
<td>$\frac{1}{3}$</td>
<td>brown</td>
</tr>
<tr>
<td>$\frac{1}{4}$</td>
<td>green</td>
</tr>
<tr>
<td>$\frac{3}{4}$</td>
<td>black</td>
</tr>
</tbody>
</table>
1. Color $\frac{2}{5}$ of the rectangle.

What fraction is uncolored? ____

2. Solve.

$$54 \div 9 = ____$$

$$27 \div 3 = ____$$

$$____ = 36 \div 6$$

$$____ = 64 \div 8$$

$$45 \div 5 = ____$$

3. Fill in the missing numbers.

Use fractions.

$$\begin{array}{c}
0 & 2/3 & \hline
\end{array}$$

4. Complete the number models.

$$\begin{array}{c}
(4 + 3) - 2 = ____
10 = 6 + (2 + ____)
___ = 3 \times (9 - 0)
(5 \times 5) - 4 = ____
\end{array}$$

5. Write 4 fractions equivalent to $\frac{1}{2}$.

____  ____  ____  ____


$$\begin{array}{c}
6,000 - 583 = 5,417
801 - 472 = 329
3,411 - 2,862 = 549
\end{array}$$
More Than ONE

Use the circles that you cut out for the Math Message.

1. Glue 3 halves into the two whole circles.  
   
   ![Diagram](image.png)
   
   3 halves or \(\frac{3}{2}\)

2. Glue 6 fourths into the two whole circles. Fill in the missing digits in the question, the fraction, and the mixed number.
   
   ![Diagram](image.png)
   
   How many fourths? _____ fourths

Write the fraction: \[\square\]  
Write the mixed number: \[1\square\]
More Than ONE (cont.)

3. \[\frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4}\]  \[\frac{1}{4}\]

How many fourths? \____ \ fourths  \hspace{2cm} \text{Color 5 fourths.}

Write the fraction: \____ \hspace{2cm} \text{Write the mixed number: } 1\frac{\,}{\,}

4. \[\frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3}\]  \[\frac{1}{3}\]

How many thirds? \____ \ thirds  \hspace{2cm} \text{Color 5 thirds.}

Write the fraction: \____ \hspace{2cm} \text{Write the mixed number: } 1\frac{\,}{\,}

5. \[\frac{1}{5} \quad \frac{1}{5} \quad \frac{1}{5} \quad \frac{1}{5} \quad \frac{1}{5}\]  \[\frac{1}{5}\]

How many fifths? \____ \ fifths  \hspace{2cm} \text{Color 8 fifths.}

Write the fraction: \____ \hspace{2cm} \text{Write the mixed number: } \, \frac{\,}{\,}

6. \[\frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3}\]  \[\frac{1}{3}\]

How many thirds? \____ \ thirds  \hspace{2cm} \text{Color 8 thirds.}

Write the fraction: \____ \hspace{2cm} \text{Write the mixed number: } \, \frac{\,}{\,}
Math Boxes 8.6

1. Draw a set of 12 Xs. Circle 9 of them. What fraction of the whole set are the 9 Xs?

2. Fill in the oval next to the best estimate.

   \[589 + 2,115 = \underline{\hspace{2cm}}\]

   0 about 2,000

   0 about 2,500

   0 about 2,200

   0 about 2,700

3. Write four fractions greater than \(\frac{1}{3}\).

   \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\)

4. Complete the bar graph.

   Kate swam 5 laps.

   Jen swam 3 laps.

   Marc swam 6 laps.

   Median number of laps: ___

5. Write 4 fractions equivalent to \(\frac{1}{4}\).

   \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\) \(\underline{\hspace{2cm}}\)

6. Fill in the missing factor.

   \[6 \times \underline{\hspace{2cm}} = 3,600\]

   \[8 \times \underline{\hspace{2cm}} = 16,000\]

   \[9 \times \underline{\hspace{2cm}} = 720\]

   \[2 \times \underline{\hspace{2cm}} = 1,800\]
Fraction Number Stories

Solve these number stories. Use pennies or counters, or draw pictures to help you.

1. There are 8 apples in the package. Glenn did not eat any. What fraction of the package did Glenn eat?

2. Anik bought a dozen eggs at the supermarket. When he got home, he found that \( \frac{1}{6} \) of the eggs were cracked. How many eggs were cracked?

3. Chante used \( \frac{2}{3} \) of a package of ribbon to wrap presents. Did she use more or less than \( \frac{3}{4} \) of the package?

4. I had 2 whole cookies. I gave you \( \frac{1}{4} \) of 1 cookie. How many cookies did I have left?

5. There are 10 quarters. You have 3. I have 2. What fraction of the quarters do you have?

What fraction of the quarters do I have?

What fraction of the quarters do we have together?

6. One day, Edwin read \( \frac{1}{3} \) of a book. The next day, he read another \( \frac{1}{3} \) of the book. What fraction of the book had he read after 2 days?

What fraction of the book did he have left to read?

7. Dorothy walks 1 \( \frac{1}{2} \) miles to school. Jaime walks 1 \( \frac{2}{4} \) miles to school. Who walks the longer distance?

8. Twelve children shared 2 medium-size pizzas equally. What fraction of 1 whole pizza did each child eat?
Write a fraction story. Ask your partner to solve it.

Draw eggs in each carton to show the fraction.

Example \[
\frac{7}{12}
\]

10. \[
\frac{6}{12}
\]

11. \[
\frac{3}{4}
\]

12. \[
\frac{4}{12}
\]

13. \[
\frac{1}{3}
\]

14. \[
\frac{3}{12}
\]

15. \[
\frac{1}{2}
\]

16. Julie drank \(\frac{1}{4}\) of a glass of juice.

Draw an empty glass.

Shade in the glass to show how much juice is left.
1. Color $\frac{6}{8}$ of the circle.

What fraction is unshaded?

2. Write $<$, $>$, or $=$.

<table>
<thead>
<tr>
<th>$\frac{3}{4}$</th>
<th>$\frac{1}{4}$</th>
<th>$\frac{1}{4}$</th>
<th>$\frac{2}{8}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{3}{8}$</td>
<td>$\frac{7}{8}$</td>
<td>$\frac{5}{6}$</td>
<td>$\frac{1}{6}$</td>
</tr>
<tr>
<td>$\frac{5}{10}$</td>
<td>$\frac{1}{2}$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Fill in the missing numbers on the number line.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>5</th>
<th></th>
</tr>
</thead>
</table>

4. How many thirds are shaded?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

____ thirds

Write the fraction: ____

5. Circle the fractions that are equivalent to $\frac{1}{3}$.

| $\frac{1}{8}$ | $\frac{2}{6}$ | $\frac{4}{12}$ |
| $\frac{6}{9}$ | $\frac{5}{15}$ | $\frac{3}{9}$ |


<table>
<thead>
<tr>
<th>Unit</th>
</tr>
</thead>
</table>

$4 \times 9 = ____$

$8 \times 8 = ____$

____ = $5 \times 8$

____ = $7 \times 9$

____ = $6 \times 6$
## Math Boxes 8.8

### 1. Solve.

- \(5 \times 9 = \underline{45}\)
- \(5 \times 90 = \underline{450}\)
- \(5 \times 900 = \underline{4500}\)

\(\underline{\text{____}} = 3 \times 8\)
\(\underline{\text{____}} = 30 \times 80\)
\(\underline{\text{____}} = 300 \times 80\)

### 2. Share $3.75 equally among 3 people.

Each person gets $\underline{\$1.25}\.

Share $10.00 equally among 4 people.

Each person gets $\underline{\$2.50}\.

### 3. 30 is 10 times as much as _____.

500 is \underline{50} times as much as 5.

\underline{\text{____}} is 100 times as much as 80.

40,000 is 1,000 times as much as \underline{40}.

### 4. 9 cups. 9 ice cubes per cup. How many ice cubes in all?

\underline{\text{____}}

3 packages. 9 juice boxes per package. How many juice boxes in all?

\underline{\text{____}}

### 5. Draw a 3-by-8 array of Xs.

How many Xs in all? \underline{24}

Write a number model.
\underline{\text{____}}

### 6. 9 children share 18 candies. How many candies per child?

\underline{\text{____}}

How many candies left over?
\underline{\text{____}}

16 books in all. 3 books per shelf. How many shelves?
\underline{\text{____}}

How many books left over? \underline{\text{____}}
Multiples of 10, 100, and 1,000

Solve each problem.

1. a. $7 \times 40 = \underline{\quad}$
   b. $700 \times 20 = \underline{\quad}$

2. a. $600 \times 20 = \underline{\quad}$
   b. $600 \times 20 = \underline{\quad}$

3. a. How many 3s are in 2,700? \underline{\quad}
   b. \underline{\quad} \times 3 = 2,700
c. $2,700 \div 3 = \underline{\quad}$

4. How many 50s are in 4,000? \underline{\quad}

5. How many 800s are in 2,400? \underline{\quad}

6. How many 70s are in 420? \underline{\quad}

7. a. $40 \times 300 = \underline{\quad}$
    b. $12,000 \div 40 = \underline{\quad}$

For Problems 8–11, use the information on the next two journal pages.

8. a. Which animal might weigh about 20 times as much as a 30-pound raccoon? \underline{\quad}
   b. Can you name two other animals which might weigh 20 times as much as a 30-pound raccoon?

9. About how many 200-pound American alligators weigh about as much as a 3,200-pound Beluga whale?

Challenge

10. Which animal might weigh about 100 times as much as the combined weights of a 15-pound Arctic fox and a 10-pound Arctic fox? \underline{\quad}

11. About how many $4\frac{1}{2}$-pound snowshoe hares weigh as much as a 27-pound porcupine? \underline{\quad}
Adult Weights of North American Animals

Beluga whale
2,000 lb to 3,500 lb

Polar bear
650 lb to 1,750 lb

Mountain goat
170 lb to 240 lb

Walrus
2,000 lb to 3,500 lb

Arctic fox
7 lb to 20 lb

Harp seal
200 lb to 396 lb

Snowshoe hare
2 2/3 lb to 5 lb

Northern fur seal
300 lb to 620 lb

Black bear
250 lb to 600 lb

Beaver
20 lb to 56 lb

Raccoon
15 lb to 45 lb

Use with Lesson 9.1.

American porcupine
20 lb to 40 lb

Sea otter
48 lb to 99 lb

Puma
150 lb to 230 lb

White-tailed deer
50 lb to 480 lb

American alligator
200 lb to 500 lb

Gray fox
9 lb to 16 lb

Bottle-nosed dolphin
350 lb to 430 lb

Right whale
70,000 lb to 140,000 lb

Gray whale
45,000 lb to 72,000 lb

Gila monster
2 1/2 lb to 4 lb

Pilot whale
3,200 lb to 6,400 lb

Atlantic green turtle
250 lb to 450 lb

West Indian manatee
500 lb to 1,100 lb

Common dolphin
200 lb to 300 lb

Pilot whale
3,200 lb to 6,400 lb

Atlantic green turtle
250 lb to 450 lb

West Indian manatee
500 lb to 1,100 lb

Common dolphin
200 lb to 300 lb
Use the Adult Weights of North American Animals poster on the previous pages. Make up multiplication and division animal number stories. Ask a partner to solve your number stories.

1. ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   Answer: ______________________________________________________

2. ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   Answer: ______________________________________________________

3. ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   Answer: ______________________________________________________
1. Write 5 fractions greater than $\frac{1}{2}$.

____, ____ , ____ , ____ , ____

Write 5 fractions less than $\frac{1}{2}$.

____, ____ , ____ , ____ , ____

Write 3 other names for $\frac{1}{2}$.

____, ____ , ____

2. Show two ways a team can score 37 points in a football game.

<table>
<thead>
<tr>
<th>Points</th>
<th>7</th>
<th>6</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How many fourths are shaded?

____ fourths

Write the fraction: ____

Write the mixed number: \( / ____ \)

4. This shape is a _____________.

It has ____ lines of symmetry.
Draw the lines of symmetry.

5. Complete.

a. 24, 30, _____, _____, 48, _____

b. _____, 56, 64, _____, _____

6. Draw an angle that measures between $0^\circ$ and $90^\circ$. 

Use with Lesson 9.1. (two hundred nine) 209
Mental Multiplication

Solve these problems in your head. Use a slate and chalk, or pencil and paper, to help you keep track of your thinking. For some of the problems, you will need to use the information on journal pages 206 and 207.

1. Could 12 harp seals weigh more than 1 ton? _____ Less than 1 ton? _____
   Explain the strategy that you used.

2. How much do eight 53-pound white-tailed deer weigh? ________________
   Explain the strategy that you used.

3. How much do six 87-pound sea otters weigh? ________________

4. How much do seven 260-pound Atlantic green turtles weigh? ________________

5. \(7 \times 23 = \) ______

6. _______ = \(8 \times 46\)

7. _______ = \(4 \times 26\)

8. \(9 \times 32 = \) _______

9. \(6 \times 54 = \) _______

10. _______ = \(3 \times 320\)

11. \(2 \times 460 = \) _______

12. _______ = \(4 \times 250\)
Which Is the Best Buy?

Solve the following problems in your head. Use a slate or pencil and scratch paper to keep track of your thinking.

1. How many pencils are in two 24-pencil packages?  
2. How many pencils are in three 16-pencil packages?  
3. How much do two 24-pencil packages cost?  
4. How much do three 16-pencil packages cost?  
5. How much do you save if you buy two 24-pencil packages instead of three 16-pencil packages?  
6. What is the total number of pencils in two 24-pencil packages and one 16-pencil package?  
7. What is the total cost of two 24-pencil packages and one 16-pencil package?  
8. How much do you save if you buy one 64-pencil package instead of two 24-pencil packages and one 16-pencil package?  
9. Explain how you solved Problem 3 in your head.

$3.99  
$1.99  
$1.69
1. Anthony ate \( \frac{3}{4} \) of his sandwich. What fraction of the sandwich is left? ____

Justin ate \( \frac{2}{3} \) of his sandwich. Did he eat more or less than \( \frac{1}{2} \) of the sandwich? __________

2. How many 10s in 40? ____

How many 10s in 100? ____

How many 10s in 160? ____

How many 10s in 210? ____

3. Draw two ways to show \( \frac{2}{3} \).

4. Draw a line segment \( AB \) that is 2 inches long. Draw a line segment \( CD \) parallel to the first line.

5. 56.714

\( \underline{6} \) is in the ones place.

\( \underline{6} \) is in the tenths place.

\( \underline{6} \) is in the thousandths place.

\( \underline{6} \) is in the tens place.

\( \underline{6} \) is in the hundredths place.

6. Draw a shape with a perimeter of 14 units.

What is the area of the shape? ____ square units
1. How many squares are in a 4-by-28 array? Make a picture of the array.

\[ 4 \times 28 = \]

Total squares: [Grid with 4 rows and 28 columns]

2. How many squares are in a 3-by-26 array? Make a picture of the array.

\[ 3 \times 26 = \]

Total squares: [Grid with 3 rows and 26 columns]

3. How many squares are in a 6-by-32 array? Make a picture of the array.

\[ 6 \times 32 = \]

Total squares: [Grid with 6 rows and 32 columns]
Geoboard Areas

Record your results in this table.

<table>
<thead>
<tr>
<th>Geoboard Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
</tr>
<tr>
<td>12 square units</td>
</tr>
<tr>
<td>12 square units</td>
</tr>
<tr>
<td>6 square units</td>
</tr>
<tr>
<td>6 square units</td>
</tr>
<tr>
<td>16 square units</td>
</tr>
<tr>
<td>16 square units</td>
</tr>
</tbody>
</table>

1. Study your table. Can you find a pattern? ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

2. Find the lengths of the sides of a rectangle or square whose area is 30 square units without using the geoboard or geoboard dot paper. Make or draw the shape to check your answer. ______________________________________________________________________

3. Make check marks in your table next to the rectangles and squares whose perimeters are 14 units and 16 units.
Math Boxes 9.3

1. Circle the fractions greater than $\frac{3}{4}$. Put a star next to the fractions equivalent to $\frac{3}{4}$.

\[
\begin{array}{c|c}
\frac{3}{6} & 1 \\ \frac{9}{12} & 7 \\ \frac{12}{16} & 99 \\
\end{array}
\]

2. Draw a set of 12 circles. Color $\frac{5}{12}$ of the set blue. Color $\frac{1}{3}$ of the set red. Color $\frac{1}{6}$ of the set green.

3. How many sixths are shaded?

\[
\begin{array}{c|c}
\text{sixths} & \text{sixths} \\
\end{array}
\]

Write the fraction: _____

Write the mixed number: / ____

4. Put in the parentheses needed to complete the number models.

\[
\begin{align*}
2 \times 90 + 7 &= 187 \\
11 - 4 \times 80 &= 560 \\
4,499 &= 50 \times 90 - 1
\end{align*}
\]

5. Multiply.

\[
\begin{array}{c}
58 \\
\times 4 \\
\end{array} \quad \begin{array}{c}
37 \\
\times 8 \\
\end{array} \quad \begin{array}{c}
49 \\
\times 6 \\
\end{array}
\]

6. Measure this line segment.

\[
\begin{array}{c}
\text{Inches} \\
\text{Centimeters}
\end{array}
\]

It is about ____ inches long.

It is about ____ centimeters long.
Using the Partial-Products Algorithm

Multiply. Compare your answers with your partner’s answers.
Use a calculator if you disagree.
If you made a mistake on a problem, work it again.

Example 7 × 46

\[
\begin{array}{c}
46 \\
\times 7 \\
\hline
7 [40s] \rightarrow 280 \\
7 [6s] \rightarrow + 42 \\
280 + 42 \rightarrow 322 \\
\end{array}
\]

1. \[\begin{array}{c}
34 \\
\times 2 \\
\end{array}\]

2. \[\begin{array}{c}
83 \\
\times 5 \\
\end{array}\]

3. \[\begin{array}{c}
55 \\
\times 6 \\
\end{array}\]

4. \[\begin{array}{c}
214 \\
\times 7 \\
\end{array}\]

5. \[\begin{array}{c}
403 \\
\times 5 \\
\end{array}\]
In each riddle, I am a different whole number. Use the clues to find out who I am.

1. **Clue 1:** I am greater than 30 and less than 40.  
   **Clue 2:** The sum of my digits is less than 5.
   
   Who am I? ____________

2. **Clue 1:** I am greater than 15 and less than 40.  
   **Clue 2:** If you double me, I become a number that ends in 0.  
   **Clue 3:** \( \frac{1}{5} \) of me is equal to 5.
   
   Who am I? ____________

3. **Clue 1:** I am less than 100.  
   **Clue 2:** The sum of my digits is 4.  
   **Clue 3:** Half of me is an odd number.
   
   Who am I? ____________

4. **Clue 1:** If you multiply me by 2, I become a number greater than 20 and less than 40.  
   **Clue 2:** If you multiply me by 6, I end in 8.  
   **Clue 3:** If you multiply me by 4, I end in 2.
   
   Who am I? ____________

**Challenge**

5. **Clue 1:** Double my tens digit to get my ones digit.  
   **Clue 2:** Double me and I am less than 50.
   
   Who am I? ____________

6. **Clue 1:** Double me, and I am greater than 80 and less than 100.  
   **Clue 2:** If you double me, I end in 4.  
   **Clue 3:** My ones digit is greater than my tens digit.
   
   Who am I? ____________
Math Boxes 9.4

1. There are ____ books in $\frac{2}{5}$ of a set of 25 books.
   
   There are ____ minutes in $\frac{3}{4}$ of an hour.
   
   I have 6 books. This is $\frac{1}{6}$ of a set of books. How many books are in the complete set?
   ____ books

2. Think:

   How many...

   \[
   63 \div 7 = \boxed{9} \quad \text{7s in 63?}
   \]

   \[
   630 \div 7 = \boxed{90} \quad \text{7s in 630?}
   \]

   \[
   48 \div 6 = \boxed{8} \quad \text{6s in 48?}
   \]

   \[
   480 \div 6 = \boxed{80} \quad \text{6s in 480?}
   \]

3. The length of the longer side is ____ units.
   
   The length of the shorter side is ____ units.
   
   The area of the rectangle is ____ square units.


<table>
<thead>
<tr>
<th>in</th>
<th>out</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td></td>
</tr>
<tr>
<td>3:15</td>
<td></td>
</tr>
<tr>
<td>5:45</td>
<td></td>
</tr>
<tr>
<td>7:40</td>
<td>11:10</td>
</tr>
</tbody>
</table>

5. Suppose you like pizza and are very hungry. Would you rather have $\frac{4}{5}$ of a pizza or $\frac{8}{10}$ of a pizza?
   
   Why? _______________________

6. Draw an angle that measures between $180^\circ$ and $270^\circ$. 
Shopping at the Stock-Up Sale

Use the Stock-Up Sale Poster #2 on page 241 in the *Student Reference Book*. Solve each number story below. Show how you got the answers.

1. When Mason sees bars of soap at the Stock-Up Sale, he wants to buy at least 5. He has $4.00. If there is no tax, can he buy 5 bars of soap? ________

   Number model: ___________________________________________________________________

   Can he buy 6 bars? ________

2. Vic’s mom gave him a $5.00 bill to buy a toothbrush. If he goes to the sale, can he buy 5 toothbrushes? ________

   Suppose there is no tax. Exactly how much money does Vic need in order to be able to buy 5 toothbrushes at the sale price? ________

   Number model: ___________________________________________________________________

3. Andrea wants 2 audio tapes. How much more will it cost her to buy 5 tapes at the sale price rather than 2 tapes at the regular price? ________

4. If the store charges 10 percent sales tax, what will the total cost of the 5 audio tapes be? ________

   Number model: ___________________________________________________________________


   _______________________________________________________________________________

   _______________________________________________________________________________

   _______________________________________________________________________________

   Answer: ________

   Number model: ___________________________________________________________________
Using the Partial-Products Algorithm

Multiply. Compare your answers with your partner’s answers. Use a calculator if you disagree. If you did a problem wrong, work it again.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<td>6.</td>
<td></td>
<td>508</td>
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<td>5</td>
</tr>
</tbody>
</table>
Math Boxes 9.5

1. Estimate the cost of these items:
   4 giant stickers at $0.88 each
   about $____._____
   2 packs of file cards at $1.69 each
   about $____._____

2. Fill in the unit box. Solve.
   \[49 \div 7 = \ldots\]
   \[36 \div 9 = \ldots\]
   \[54 \div 6 = \ldots\]
   \[\ldots = 40 \div 8\]
   \[\ldots \div 8 = 8\]

3. What 3-D shape is this a picture of?
   0 sphere
   0 cylinder
   0 pyramid
   What is the shape of the base?
   ________________

4. Solve.
   \[
   \begin{array}{c}
   678 \\
   + 492 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   704 \\
   - 358 \\
   \hline
   \end{array}
   \]

5. Use the partial-products algorithm to solve.
   \[
   \begin{array}{c}
   49 \\
   \times 7 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   652 \\
   \times 3 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   408 \\
   \times 8 \\
   \hline
   \end{array}
   \]

6. Fill in the empty frames and the rule box.
   \[
   \begin{array}{c}
   + 40 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   83 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   98 \\
   \hline
   \end{array}
   \quad
   \begin{array}{c}
   73 \\
   \hline
   \end{array}
   \]
Write any of the numbers 2–90 onto the grid above.

You may use a number only once.

To help you keep track of the numbers you use, circle them in the list.
Using the Partial-Products Algorithm

Multiply. Compare your answers with your partner’s answers. Use a calculator if you disagree. If you did a problem wrong, work it again.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
</table>
| 1. | \[
\begin{array}{c}
29 \\
\times 4
\end{array}
| 2. | \[
\begin{array}{c}
85 \\
\times 5
\end{array}
| 3. | \[
\begin{array}{c}
93 \\
\times 4
\end{array}
| 4. | \[
\begin{array}{c}
52 \\
\times 9
\end{array}
| 5. | \[
\begin{array}{c}
409 \\
\times 5
\end{array}
| 6. | \[
\begin{array}{c}
432 \\
\times 8
\end{array}
|
1. There are ____ flowers in \( \frac{3}{10} \) of a bunch of 10 flowers.

   There are ____ minutes in \( \frac{1}{4} \) of an hour.

   I have 5 cars. This is \( \frac{1}{3} \) of a set of cars. How many cars are in the complete set?
   ____ cars

2. How many 4s in 2,000? ____
   
   \[ 2,000 \div 4 = _____ \]
   
   _____ \( \times 4 = 2,000 \)

   What number times 7 = 6,300? ____
   
   \[ 6,300 \div 7 = _____ \]
   
   _____ \( \times 7 = 6,300 \)

3. The length of the longer side is ____ units.

   The length of the shorter side is ____ units.

   The area of the rectangle is ____ square units.

4. Determine the total cost.

   4 boxes of cereal at $2.98 each $____

   2 gallons of milk at $3.09 each $____

   Total: $____

5. Use the partial-products algorithm to solve.

   \[
   \begin{array}{ccc}
   59 & \times 3 & 489 \times 7 & 608 \times 9 \\
   \end{array}
   \]


   \[
   (40 \times 3) \div 2 = _____ \\
   
   4 \times (300 \div 6) = _____ \\
   
   (7 \times 80) + 140 = _____
   \]
Sharing Money

Work with a partner. Put your play money in a bank for both of you to use.

1. If $54 is shared equally by 3 people, how much does each person get?
   a. How many $10 bills does each person get? _____ $10 bill(s)
   b. How many dollars are left to share? $
   c. How many $1 bills does each person get? _____ $1 bill(s)
   d. Number model: $54 ÷ 3 = $

2. If $204 is shared equally by 6 people, how much does each person get?
   a. How many $100 bills does each person get? _____ $100 bill(s)
   b. How many $10 bills does each person get? _____ $10 bill(s)
   c. How many dollars are left to share? $
   d. How many $1 bills does each person get? _____ $1 bill(s)
   e. Number model: $204 ÷ 6 = $

3. If $71 is shared equally by 5 people, how much does each person get?
   a. How many $10 bills does each person get? _____ $10 bill(s)
   b. How many dollars are left to share? $
   c. How many $1 bills does each person get? _____ $1 bill(s)
   d. How many $1 bills are left over? _____ $1 bill(s)
   e. If the leftover $1 bills are shared equally, how many cents does each person get? _____ ¢
   f. Number model: $71 ÷ 5 = $

4. $84 ÷ 3 = $
5. $75 ÷ 6 = $
6. $181 ÷ 4 = $
7. $617 ÷ 5 = 

Use with Lessons 9.7 and 9.8.
Math Boxes 9.7

1. How many fifths are shaded?

   ____ fifths

   Write the fraction: __

   Write the mixed number: / __

2. Write 3 fractions that are equivalent to \( \frac{8}{12} \).

   ____  ____  ____

3. Write six factors of 12.

   ____  ____  ____

   ____  ____  ____

4. What part of this pizza has been eaten?

   _____________

   What part is left?

   _____________

5. Use the partial-products algorithm to solve.

   \[
   \begin{array}{ccc}
   296 & \times & 4 \\
   451 & \times & 5 \\
   183 & \times & 7 \\
   \end{array}
   \]

6. Measure this line segment.

   _____________

   It is about _________ inches long.

   It is about _____ centimeters long.
Solve the problems below. Remember that you will have to decide what the remainder means in order to answer the questions. You may use your calculator, counters, or pictures.

1. Ruth is buying soda for a party. There are 6 cans in a pack. She needs 44 cans. How many 6-packs will she buy? _______ 6-packs

2. Paul is buying tickets to the circus. Each ticket costs $7. He has $47. How many tickets can he buy? _______ tickets

3. Héctor is standing in line for the roller coaster. There are 33 people in line. Each roller coaster car holds 4 people. How many cars are needed to hold 33 people? _______ cars

Pretend that the division key on your calculator is broken. Solve the following problems:

4. Regina is building a fence around her dollhouse. She is making each fence post 5 inches tall. The wood she bought is 36 inches long. How many fence posts does each piece of wood make? _______ posts

   Explain how you found your answer.

5. Missy, Ann, and Herman found a $10 bill. They want to share the money equally. How much money will each person get? _______

   Explain how you found your answer.
Using the Partial-Products Algorithm

Multiply. Compare your answers with your partner’s answers.
Use a calculator if you disagree.
If you did a problem wrong, work it again.

1. \[\begin{array}{c}
43 \\
\times 6
\end{array}\]

2. \[\begin{array}{c}
53 \\
\times 4
\end{array}\]

3. \[\begin{array}{c}
68 \\
\times 5
\end{array}\]

4. \[\begin{array}{c}
74 \\
\times 7
\end{array}\]

5. \[\begin{array}{c}
167 \\
\times 4
\end{array}\]

6. \[\begin{array}{c}
403 \\
\times 3
\end{array}\]
Math Boxes 9.8

1. Write the fractions in order from smallest to largest.
   \[\frac{1}{3}, \frac{1}{10}, 1\frac{1}{4}, \frac{3}{4}\]

2. Determine the total cost.
   - 5 cans of fruit at $1.19 each $\ldots$. $\ldots$
   - 3 gallons of ice cream at $3.85 each $\ldots$. $\ldots$
   - Total: $\ldots$. $\ldots$

3. Toni frosted \(\frac{4}{5}\) of the cupcakes.
   - What fraction of the cupcakes are not frosted? $\ldots$
   - Did she frost more or less than \(\frac{1}{2}\) of the cupcakes? $\ldots$
   - If there were 20 cupcakes in all, how many did she frost? $\ldots$

4. Use bills and coins.
   - Share $78 equally among 3 people.
     Each person gets $\ldots$. $\ldots$
   - Share $53 equally among 4 people.
     Each person gets $\ldots$. $\ldots$

5. The length of the longer side is $\ldots$ units.
   - The length of the shorter side is $\ldots$ units.
   - The area of the rectangle is $\ldots$ square units.

6. Circle the angle that measures about 90 degrees.
   - An angle that measures 90° is called a $\ldots$ angle.
Megan has a special way of doing multiplication problems. She calls it lattice multiplication. Can you figure out how she does it?

Study the problems and solutions in Column A. Then try to use lattice multiplication to solve the problems in Column B.

Column A

3 \times 64 = 192

\[
\begin{array}{ccc}
1 \\
1 \ 8 \\
9 \\
\end{array}
\]

5 \times 713 = 3,565

\[
\begin{array}{ccc}
3 \\
7 \\
3 \\
\end{array}
\]

7 \times 376 = 2,632

\[
\begin{array}{ccc}
3 \\
2 \\
2 \\
\end{array}
\]

Column B

1. 4 \times 65 =

\[
\begin{array}{ccc}
6 \\
\end{array}
\]

2. 6 \times 815 =

\[
\begin{array}{ccc}
8 \\
\end{array}
\]

3. 9 \times 634 =

\[
\begin{array}{ccc}
6 \\
\end{array}
\]
Lattice Multiplication Practice

1. \(8 \times 45 = \underline{360}\)
2. \(9 \times 37 = \underline{333}\)

3. \(5 \times 23 = \underline{115}\)
4. \(3 \times 124 = \underline{372}\)

5. \(6 \times 431 = \underline{2586}\)
6. \(7 \times 209 = \underline{1463}\)
Alicia’s family is planning a family reunion. There are 20 children and 9 adults. Alicia will order extra-long submarine sandwiches for the reunion. Each sandwich is cut into 6 sections.

1. What is the largest number of family members who might come to the reunion? _____ people

2. Suppose that each person eats 1 section of a sandwich.
   a. How many sections of a sandwich are needed? _____ sections
   b. How many sandwiches will Alicia need to buy? _____ sandwiches
   c. How many sections of a sandwich is that? _____ sections
   d. What fraction of a whole sandwich will each person eat? _____ of a sandwich
   e. How many whole sandwiches will be eaten? _____ sandwiches
   f. What fraction of a sandwich will be left over? _____ of a sandwich

3. Suppose that each person eats 2 sections of a sandwich.
   a. How many sections of a sandwich are needed? _____ sections
   b. How many sandwiches will Alicia need to buy? _____ sandwiches
   c. How many sections of a sandwich is that? _____ sections
   d. What fraction of a whole sandwich will each person eat? _____ of a sandwich
   e. How many whole sandwiches will be eaten? _____ sandwiches
   f. What fraction of a sandwich will be left over? _____ of a sandwich
# Math Boxes 9.9

1. Fill in the oval next to the best estimate.
   
   \[1,943 - 488 = \quad \underline{\quad} \quad \]
   
   0 about 1,000
   0 about 1,200
   0 about 1,500
   0 about 1,800

2. How many 4s in 40? ________
   How many 4s in 400? ________
   How many 4s in 4,000? ________
   How many 10s in 400? ________
   How many 100s in 40,000? ________

3. Write six factors of 20.
   ______ ______ ______
   ______ ______ ______

4. Allison has 58 stickers. She wants to share them among 8 friends.
   How many stickers does each friend get? ________
   How many stickers are left over? ________

5. Use the partial-products algorithm to solve.
   
   \[
   \begin{array}{c}
   238 \times 6 \\
   574 \times 5 \\
   706 \times 7 \\
   \end{array}
   \]

6. Put in the parentheses needed to complete the number models.
   
   \[
   \begin{align*}
   15 + 80 \times 90 &= 7,215 \\
   14 - 6 \times 800 &= 6,400 \\
   60 \times 79 + 1 &= 4,800 \\
   \end{align*}
   \]
Array Multiplication 2

1. How many squares are in a 20-by-13 array?  
   Total squares = ______
   \[20 \times 13 = _____\]

2. How many squares are in an 18-by-30 array?  
   Total squares = ______
   \[18 \times 30 = _____\]
Array Multiplication 3

1. How many squares are in a 17-by-34 array? Total squares =

\[ 17 \times 34 = \]

2. How many squares are in a 22-by-28 array? Total squares =

\[ 22 \times 28 = \]
1. Fill in the missing numbers on the number line.

\[ \quad \quad 1 \quad 1 \frac{1}{6} \quad \quad \]

2. Find the total cost.

- 3 boxes of fruit bars at $1.89 each \( \$ \quad \)
- 2 quarts of juice at $1.75 each \( \$ \quad \)

Total: \( \$ \quad \)

3. Find the area of the rectangle.

\[ \begin{array}{c}
20 \text{ cm} \\
60 \text{ cm}
\end{array} \]

\[ \quad \times \quad = \quad \text{cm}^2 \]

4. Use bills and coins.

- Share $108 equally among 4 people.
  Each gets \( \$ \quad \)
- Share $61 equally among 4 people.
  Each gets \( \$ \quad \)

5. Practice lattice multiplication.

\[ \begin{array}{c}
493 \\
\times \quad \end{array} \]

\[ \begin{array}{c}
\begin{array}{c}
4 \\
9 \\
3
\end{array} \\
\begin{array}{c}
4 \\
9 \\
3
\end{array}
\end{array} \]

\[ \begin{array}{c}
6
\end{array} \]
**Multiplication with Multiples of 10**

Multiply. Compare your answers with your partner’s answer. Use a calculator if you disagree. If you did a problem wrong, work it again.

### Example

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>$20[30s]$</td>
<td>$600$</td>
</tr>
<tr>
<td>$6[30s]$</td>
<td>$+180$</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>780</strong></td>
</tr>
</tbody>
</table>

### Problems

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<tbody>
<tr>
<td>1.</td>
<td>$70$</td>
</tr>
<tr>
<td>$×18$</td>
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</tr>
<tr>
<td>2.</td>
<td>$88$</td>
</tr>
<tr>
<td>$×40$</td>
<td></td>
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<tr>
<td>3.</td>
<td>$60$</td>
</tr>
<tr>
<td>$×35$</td>
<td></td>
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<tr>
<td>4.</td>
<td>$80$</td>
</tr>
<tr>
<td>$×44$</td>
<td></td>
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<tr>
<td>5.</td>
<td>$90$</td>
</tr>
<tr>
<td>$×63$</td>
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Use with Lesson 9.11.
1. Write the fractions in order from smallest to largest.

\[
\frac{5}{6}, \frac{4}{12}, \frac{2}{3}, \frac{1}{100}
\]

Think: How many 8s in 152?

2. Solve. Use your calculator. Pretend the division key is broken.

\[152 \div 8 = \boxed{19}\]

Think: How many 3s in 285?

\[285 \div 3 = \boxed{95}\]

3. Name eight factors of 24.

Think: How many 3s in 285?

4. Practice lattice multiplication.

\[
\begin{array}{ccc}
3 & 2 & 4 \\
\times & & 6 \\
\end{array}
\]

Think: How many 3s in 285?

5. Fill in the unit box. Solve.

Unit

\[
6 \times 6 = \boxed{36}
\]

Think: How many 3s in 285?

\[
7 \times 9 = \boxed{63}
\]

Think: How many 3s in 285?

\[
\boxed{\quad} = 8 \times 5
\]

Think: How many 3s in 285?

\[
\boxed{\quad} = 9 \times 9
\]

Think: How many 3s in 285?

\[
\boxed{\quad} = 9 \times 6
\]

Think: How many 3s in 285?

6. This shape is a

Think: How many 3s in 285?

\[
6 \text{ yd} \hspace{1cm} 15 \text{ yd}
\]

The perimeter is _____ yards.
## 2-Digit Multiplication

Multiply using the partial-products algorithm. Compare your answers with your partner’s answers. Use a calculator if you disagree. If you did a problem wrong, work it again.

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<tbody>
<tr>
<td><strong>1.</strong></td>
<td>( \frac{24}{16} )</td>
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<tr>
<td><strong>2.</strong></td>
<td>( \frac{42}{31} )</td>
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<td><strong>3.</strong></td>
<td>( \frac{12}{87} )</td>
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<tr>
<td><strong>4.</strong></td>
<td>( \frac{59}{79} )</td>
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<td><strong>5.</strong></td>
<td>( \frac{36}{14} )</td>
<td></td>
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<tr>
<td><strong>6.</strong></td>
<td>( \frac{42}{53} )</td>
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<tr>
<td><strong>7.</strong></td>
<td>( \frac{23}{81} )</td>
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<tr>
<td><strong>8.</strong></td>
<td>( \frac{63}{12} )</td>
<td></td>
</tr>
<tr>
<td><strong>9.</strong></td>
<td>( \frac{49}{38} )</td>
<td></td>
</tr>
</tbody>
</table>
Accurate Measures

Use fractions to carefully measure these drawings using both the inch and centimeter sides of your ruler.

1. 

The length of the fish
about _____ in.  about _____ cm

2. 

The map distance from Alpha to Beta
about _____ in.  about _____ cm

3. 

Line segment $AB$: about _____ in.
Line segment $AB$: about _____ cm
Line segment $AC$: about _____ in.
Line segment $AC$: about _____ cm

Carefully draw the following line segments:

4. 9.5 cm
5. $4\frac{1}{4}$ in.
6. 2 cm shorter than 9.5 cm
7. $1\frac{1}{4}$ in. shorter than $4\frac{1}{4}$ in.
1. Shade $\frac{3}{8}$.
How many eighths are shaded?
_____ eighths
Write the fraction: __________
Write the mixed number: \(\frac{1}{\underline{\hspace{1cm}}}\)

2. How many 10s are in each number?

- 400 _____ tens
- 150 _____ tens
- 1,600 _____ tens
- 2,430 _____ tens

3. Use the partial-products algorithm to solve.

\[
\begin{array}{c}
92 \\
\times 60 \\
\hline
37 \\
\times 50 \\
\hline
\end{array}
\]

4. Make an estimate. About how much money, without tax, will you need for 5 cans of juice that cost $2.89 each?

about __________

5. Practice lattice multiplication.

\[43 \times 68 = \underline{\hspace{1cm}}\]

6. Use bills and coins.
Share $45.90 equally among 3 people.
Each gets $\underline{\hspace{1cm}}$

Share $49.20 equally among 4 people.
Each gets $\underline{\hspace{1cm}}
Number Stories with Positive and Negative Numbers

Solve the following problems.

1. Jim records his weight change weekly. This week he recorded \(-3\) pounds. Can you tell how much he weighs? _________

2. The largest change in temperature in a single day took place in January 1916 in Browning, Montana. The temperature dropped 100°F that day. The temperature was 44°F when it started dropping. How low did it go? _________

3. The largest temperature rise in 12 hours took place in Granville, North Dakota, on February 21, 1918. The temperature rose 83°F that day. The high temperature was 50°F. What was the low temperature? _________

4. On January 12, 1911, the temperature in Rapid City, South Dakota, fell from 49°F at 6 A.M. to \(-13\)°F at 8 A.M. By how many degrees did the temperature drop in those 2 hours? _________

5. The highest temperature ever recorded in Verkhoyansk, Siberia, was 98°F. The lowest temperature ever recorded there was \(-94\)°F. What is the difference between those two temperatures? _________

6. Write your own number story using positive and negative numbers.

________________________________________________________________________

________________________________________________________________________

Multiplication Strategies

Try using your favorite strategy to solve each problem. Compare your answers with your partner’s answers. Use a calculator if you disagree. If you make a mistake, solve the problem again.

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7. My favorite multiplication strategy is _________________________________.

I like this strategy best because _________________________________.

Use with Lesson 9.13.
1. There are 24 children in Mrs. Little’s class. 
   \( \frac{1}{2} \) of the children play soccer. How many children play soccer? 
   _____ children 
   \( \frac{1}{3} \) of the children play a musical instrument. How many children play a musical instrument? 
   _____ children

2. Find the area of the rectangle. 
   
   \[
   \text{80 in.} \times \text{40 in.} = \text{_____ in.}^2
   \]

3. Name eight factors of 36. 
   _____ _____ _____ _____ 
   _____ _____ _____ _____

4. Solve. Use your calculator. Pretend the division key is broken. 
   
   \[
   144 \div 9 = \text{_____}
   \]
   Think: How many 9s in 144?
   
   \[
   465 \div 3 = \text{_____}
   \]
   Think: How many 3s in 465?

5. Use the partial-products algorithm to solve. 
   
   \[
   \begin{array}{c}
   \times 62 \\
   35 \\
   \times 31 \\
   \end{array}
   \]

6. Practice lattice multiplication. 
   
   \[
   \begin{array}{c}
   7 \times \text{4} \\
   \end{array}
   \]

   \[
   \begin{array}{c}
   8 \\
   \end{array}
   \]
Math Boxes 9.14

1. Measure this line segment. 

__________

It is about _____ inches long.

Draw a line segment \(1\frac{3}{4}\) inches long.

2. Measure this line segment. 

__________

It is about _____ centimeters long.

Draw a line segment 3.5 centimeters long.

3. Circle the most appropriate unit.

length of calculator:
- inches
- feet
- miles

weight of an adult:
- ounces
- pounds
- tons

amount of gas in car:
- cups
- pints
- gallons

4. Solve.

1 foot = _____ inches

_____ feet = 36 inches

1 yard = _____ feet

_____ yards = 15 feet

1 yard = _____ inches

5. Find the median of the following numbers.

34, 56, 34, 16, 33, 27, 45

Median: _____

6. Circle the tool you would use to find

length of a pen:
- ruler
- compass
- scale

weight of a dime:
- ruler
- compass
- scale

way to get home:
- ruler
- compass
- scale
Review: Units of Measure

1. Measure in centimeters. Which is longer, the path from A to B or the path from C to D? __________

   ![Diagram showing paths from A to B and C to D]

   How much longer is it? __________

2. On the top edge of the ruler, make a dot at $3\frac{1}{2}$ inches. Label it E.

   ![Ruler with marked points and labeled E]

3. Make a dot at $4\frac{3}{4}$ in. Label it F.

4. Make a dot at $2\frac{7}{8}$ in. Label it G.

5. What is the distance from E to F? _____ in.

6. From E to G? _____ in.

7. From F to G? _____ in.

Complete.

8. $3 \text{ yd} = _____ \text{ ft}$

9. $4 \text{ yd 1 ft} = _____ \text{ ft}$

10. $1 \text{ ft 8 in.} = _____ \text{ in.}$

11. $7 \text{ ft} = _____ \text{ yd _____ ft}$

Measure the sides of the rectangle in centimeters. Find the area.

12. Area: __________ (unit)

   ![Rectangle with grid]

Challenge

Measure the sides of the rectangle in centimeters. Find the area.

13. Area: __________ (unit)

   ![Rectangle with grid]
Earth Layers

Earth is made of layers. The outer layer (the part you stand on) is called the crust. Compared to the other layers, the crust is very thin—it ranges from 8 to 80 kilometers in depth. If Earth were a huge egg, the crust would not be much thicker than the shell.

The picture is a scale drawing of Earth’s layers. In the drawing, each centimeter stands for 1,000 kilometers. You can estimate the actual thickness of each layer by measuring with a centimeter ruler. For example, the lower mantle in the drawing is about 2.1 centimeters wide. This tells you that the actual thickness is about 2,100 kilometers.

1. Imagine that you could dig a hole to the center of Earth. About how deep would the hole be? about __________ kilometers

2. What is the diameter of Earth? about __________ kilometers

3. The closer you get to the center of Earth, the hotter it gets. Study the data in the table. In which layer is the temperature about 800°C? 50 km below the surface

4. In which layer is the temperature about 3,000°C? 3,200 km below the surface

Temperatures Inside Earth

<table>
<thead>
<tr>
<th>Depth Below Surface</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 km below the surface</td>
<td>about 800°C</td>
</tr>
<tr>
<td>1,000 km below the surface</td>
<td>about 1,800°C</td>
</tr>
<tr>
<td>2,000 km below the surface</td>
<td>about 3,000°C</td>
</tr>
<tr>
<td>3,200 km below the surface</td>
<td>about 3,500°C</td>
</tr>
<tr>
<td>at the center of Earth</td>
<td>about 4,000°C</td>
</tr>
</tbody>
</table>
1. What temperature is 30° warmer than –20°C?
   ____ °C

   How much colder is –5°F than 10°F?
   ____ ° colder

2. Use the partial-products algorithm to solve.
   \[
   \begin{array}{c}
   \times 86 \\
   \times 27 \\
   \times 64 \\
   \end{array}
   \]

3. Write six numbers that are factors of 18.
   ____   ____   ____
   ____   ____   ____

4. A hexagon is ONE. Shade \( \frac{2}{3} \).

   What fraction is not shaded?
   ____________

5. Make an estimate. About how much money, without tax, will you need for 5 gallons of milk that cost $3.09 each?
   about ____________

   \[
   \begin{align*}
   (7 \times 7) + 11 &= ____ \\
   100 - (8 \times 9) &= ____ \\
   ____ &= (4 \times 9) + (6 \times 8)
   \end{align*}
   \]
# Volume of Boxes

**Part 1** Use the patterns on *Math Masters*, page 166 to build Boxes A, B, C, and D. Record the results in the table.

<table>
<thead>
<tr>
<th>Box</th>
<th>Number of cm Cubes</th>
<th>Area of Base (square cm)</th>
<th>Height (cm)</th>
<th>Volume (cubic cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>Exact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part 2** The following patterns are for Boxes E, F, and G. Each square stands for 1 square centimeter. Find the volume of each box. (Do not cut out the patterns.)

- **Box E**
  - _____ cubic cm

- **Box F**
  - _____ cubic cm

- **Box G**
  - _____ cubic cm

Use with Lesson 10.2.
## Multiplication Practice

Use your favorite multiplication algorithm to solve the following problems. Then, compare answers with your partner. Use a calculator if you disagree. If you made a mistake on a problem, try to solve it again.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>427</td>
<td>( \times ) 3</td>
</tr>
<tr>
<td>2.</td>
<td>505</td>
<td>( \times ) 8</td>
</tr>
<tr>
<td>3.</td>
<td>20</td>
<td>( \times ) 90</td>
</tr>
<tr>
<td>4.</td>
<td>67</td>
<td>( \times ) 40</td>
</tr>
<tr>
<td>5.</td>
<td>74</td>
<td>( \times ) 35</td>
</tr>
<tr>
<td>6.</td>
<td>37</td>
<td>( \times ) 58</td>
</tr>
</tbody>
</table>
**Weight and Volume**

Complete Parts 1 and 2 before the start of Lesson 10.5.

**Part 1** Try to order the objects on display from heaviest to lightest. Lift them to help you guess. Record your guesses below.

**Names of objects in order**

<table>
<thead>
<tr>
<th>heaviest</th>
<th>2nd heaviest</th>
<th>3rd heaviest</th>
<th>lightest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part 2** Try to order the objects on display from largest to smallest volume. Record your guesses below.

**Names of objects in order**

<table>
<thead>
<tr>
<th>largest</th>
<th>2nd largest</th>
<th>3rd largest</th>
<th>smallest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete Parts 3 and 4 as part of Lesson 10.5.

**Part 3** Record the actual order of the objects from heaviest to lightest. Were your guesses correct?

**Names of objects in order**

<table>
<thead>
<tr>
<th>heaviest</th>
<th>2nd heaviest</th>
<th>3rd heaviest</th>
<th>lightest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part 4** Record the actual order of the objects from largest to smallest volume. Were your guesses correct?

**Names of objects in order**

<table>
<thead>
<tr>
<th>largest</th>
<th>2nd largest</th>
<th>3rd largest</th>
<th>smallest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Review** Complete the number models

1. \((3 \times 8) - 7 = \)  
   \[3 \times (8 - 7) = \]

2. \(\text{_____} = (18 \div 2) + 4\)  
   \[\text{_____} = 18 \div (2 + 4)\]

3. \((15 + 25) - 8 = \)  
   \[15 + (25 - 8) = \]

4. \(\text{_____} = (6 + 4) \times (6 - 4)\)  
   \[\text{_____} = 6 + (4 \times 6) - 4\]

5. \(37 - (12 - 5) = \)  
   \[(37 - 12) - 5 = \]

6. \(\text{_____} = (24 \div 4) \div 2\)  
   \[\text{_____} = 24 \div (4 \div 2)\]

Use with Lesson 10.2.
Math Boxes 10.2

1. What is the median number of pets?
   ____ pet(s)

<table>
<thead>
<tr>
<th>Number of Pets</th>
<th>Number of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>////</td>
</tr>
<tr>
<td>1</td>
<td>//://</td>
</tr>
<tr>
<td>2</td>
<td>///</td>
</tr>
<tr>
<td>3</td>
<td>///</td>
</tr>
<tr>
<td>4</td>
<td>/</td>
</tr>
<tr>
<td>5</td>
<td>/</td>
</tr>
</tbody>
</table>

2. What is this 3-dimensional shape called?
   0 rectangular prism
   0 pyramid
   0 sphere

   How many faces does it have?
   ____ faces

3. There are 20 crayons in a box.
   \( \frac{1}{2} \) of the crayons are broken.

   How many crayons are broken?
   ____ crayons

   \( \frac{1}{4} \) of the crayons are red.

   How many crayons are red?
   ____ crayons

4. Measure this line segment.
   __________________

   It is about ____ inches long.

   It is about ____ centimeters long.

5. Fill in the unit box.
   Solve.

   \[ 56 \div 8 = \blank \]
   \[ \blank = 63 \div 7 \]
   \[ \blank = 24 \div 8 \]
   \[ \blank = 54 \div 9 \]
   \[ 64 \div 8 = \blank \]

6. Circle the fractions less than \( \frac{2}{3} \).

   Put a star next to the fractions equivalent to \( \frac{2}{3} \).

   \[ \frac{1}{3}, \frac{1}{3} \]
   \[ \frac{2}{5}, \frac{2}{5} \]
   \[ \frac{5}{6}, \frac{5}{6} \]
# Body Measures

Work with a partner to make each measurement to the nearest \( \frac{1}{4} \) inch.

<table>
<thead>
<tr>
<th></th>
<th>Adult at Home</th>
<th>Me (Now)</th>
<th>Me (Later)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>height</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>shoe length</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>around neck</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>around wrist</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>waist to floor</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>forearm</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>hand span</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td><strong>arm span</strong></td>
<td>about _____ in.</td>
<td>about _____ in.</td>
<td>about _____ in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Math Boxes 10.3

1. Find the distance between each pair of numbers.
   - 2 and –6 ______
   - –7 and 15 ______
   - 100 and –500 ______

2. Practice lattice multiplication.
   \[84 \times 56 = \underline{\phantom{000}}\]

3. Fill in the missing numbers on the number line.

4. Draw an angle that measures between 180° and 270°.

5. Fill in the unit box. Solve.
   \[\underline{\phantom{0000}} \times 8 = 32\]
   \[\underline{\phantom{0000}} \times 5 = 40\]
   \[\underline{\phantom{0000}} \times 6 = 36\]
   \[81 = 9 \times \underline{\phantom{000}}\]
   \[45 = 5 \times \underline{\phantom{000}}\]

6. Use bills and coins.
   Share $63.75 equally among 3 people.
   Each gets $\underline{\phantom{0000}}$
   Share $63.00 equally among 5 people.
   Each gets $\underline{\phantom{0000}}$
Refer to pages 147 and 148 in your *Student Reference Book*. For each scale shown, list three things you could weigh on the scale.

<table>
<thead>
<tr>
<th>balance scale</th>
<th>produce scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>market scale</td>
<td>letter scale</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>package scale</td>
<td>platform scale</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>bath scale</td>
<td>infant scale</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>spring scale</td>
<td>diet/food scale</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reading Scales

Read each scale and record the weight.

1. ____ g

2. ____ lb

3. ____ lb

4. ____ lb

5. ____ oz

Use with Lesson 10.4.
Silly Stories

Refer to the Adult Weights of North American Animals Poster on journal pages 206 and 207 to solve the number stories.

1. If a 30-pound raccoon and a 150-pound deer both stood on a scale, what weight would the scale show?

2. If five 40-pound beavers climbed on one side of a pan balance, which animal might sit on the other pan so they balance?

3. If a 3,000-pound beluga whale, a 6,000-pound pilot whale, a 50,000-pound gray whale, and an 80,000-pound right whale lay on a platform scale (it would have to be huge!), what weight would the scale show?

   Which single whale could weigh this much?

4. One side of a pan balance has 50 three-pound Gila monsters. The other side of the pan balance has 10 five-pound snowshoe hares. How many of which animal could you add to one of the pans so that the pans balance?

   Would the animals go on the pan with the Gila monsters or the snowshoe hares?

5. Write and solve a problem of your own.
1. Complete the bar graph.
   Eli biked 4 miles.
   Kate biked 5 miles.
   Joe biked 2 miles.
   
<table>
<thead>
<tr>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
   |       | Eli  Kate  Joe

2. Fill in the oval next to the best estimate.
   
   \[747 + 932 = \underline{}\]
   
   0 about 1,500
   0 about 1,700
   0 about 2,000
   0 about 2,500

3. Write six numbers that are factors of 28.
   _____  _____  _____
   _____  _____  _____

4. Use your Pattern-Block Template to trace three shapes that are regular polygons.

5. Draw two ways to show \(\frac{5}{4}\).

6. Draw a line segment \(1\frac{3}{4}\) inches long.
   
   Draw a line segment \(\frac{1}{2}\) inch longer than the one you just drew.
1. Write the missing numbers.

\[ \underline{\phantom{-30}} \quad -30 \quad \underline{\phantom{10}} \quad \underline{\phantom{10}} \quad \underline{\phantom{10}} \quad 10 \]

2. Use the partial-products algorithm to solve.

\[
\begin{array}{c}
36 \\
\times 25 \\
\end{array}
\quad \quad 
\begin{array}{c}
43 \\
\times 65 \\
\end{array}
\]

3. Draw a set of 12 Xs. Circle 9 of them.

What fraction of the Xs are circled?

\[
\underline{\phantom{\frac{1}{1}}} \quad \underline{\phantom{\frac{1}{1}}} 
\]

Write an equivalent fraction.

\[
\underline{\phantom{\frac{1}{1}}} 
\]

4. The degree measure of the angle is:

\[
0 \quad 180^\circ \\
0 \quad \text{less than} \ 90^\circ \\
0 \quad \text{less than} \ 270^\circ \\
0 \quad 290^\circ 
\]

5. Read the scale and record the weight. \[ \underline{\phantom{\text{lb}}} \text{ lb} \]

6. Adam built a rectangular prism out of base-10 blocks. He used 30 cm cubes to make the base. He put 4 more layers of cubes on top of that. What is the volume of the prism he built?

\[ \underline{\phantom{\text{cubic centimeters}}} \text{ cubic centimeters} \]
### Units of Measure

Mark the unit you would use to measure each item.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. thickness of a dime</td>
<td>millimeter, gram, foot</td>
</tr>
<tr>
<td>2. flour used in cooking</td>
<td>gallon, cup, liter</td>
</tr>
<tr>
<td>3. gasoline for a car</td>
<td>fluid ounce, ton, gallon</td>
</tr>
<tr>
<td>4. distance to the moon</td>
<td>foot, square mile, kilometer</td>
</tr>
<tr>
<td>5. area of a floor</td>
<td>square foot, cubic foot, foot</td>
</tr>
<tr>
<td>6. package of meat</td>
<td>yard, ounce, ton</td>
</tr>
<tr>
<td>7. draperies</td>
<td>kilometer, millimeter, yard</td>
</tr>
<tr>
<td>8. diameter of a basketball</td>
<td>mile, inch, square inch</td>
</tr>
<tr>
<td>9. perimeter of a garden</td>
<td>yard, square yard, centimeter</td>
</tr>
<tr>
<td>10. spices in a recipe</td>
<td>teaspoon, pound, fluid ounce</td>
</tr>
<tr>
<td>11. weight of a nickel</td>
<td>pound, gram, inch</td>
</tr>
<tr>
<td>12. volume of a suitcase</td>
<td>square inch, foot, cubic inch</td>
</tr>
<tr>
<td>13. length of a cat’s tail</td>
<td>centimeter, meter, yard</td>
</tr>
</tbody>
</table>

Mark the best answer.

14. How much can an 8-year-old grow in a year?
   - about 2 in.
   - about 2 ft
   - about 1 yd
   - about 1 m

15. How long would it take you to walk 3 miles?
   - about 10 min
   - about 20 min
   - about 1 hour
   - about 5 hours

### Challenge

One liter of water weighs 1 kilogram.

16. How many grams does 1 milliliter of water weigh? _______ g

17. How many grams does 0.1 liter of water weigh? _______ g
**Metric Weights**

1. Two regular-size paper clips weigh about 1 gram.
   
   a. About how many paper clips would weigh 10 grams? 
   
   b. About how many would weigh 1 kilogram? 
   
   c. 0.5 kilogram? 

2. One ounce is about 30 grams.

   a. About how many regular-size paper clips are in 1 ounce? 

   b. 1 pound? 

3. About how many grams does a box of 100 paper clips weigh if the empty box weighs about 5 grams? 

4. A ream of paper has 500 sheets. Most reams of copying paper weigh a little more than 2 kilograms each. About how many grams does 1 sheet of paper weigh? 

**Review** Solve.

5. \[ \frac{35}{4} \times \]

6. \[ \frac{62}{3} \times \]

7. \[ \frac{285}{6} \times \]

8. Write a number story for one of the problems you just solved. 

   ________________________________________________________________

   ________________________________________________________________

   ________________________________________________________________

   ________________________________________________________________

   ________________________________________________________________

   ________________________________________________________________

Use with Lesson 10.6.
1. What is the median number of hours children sleep each night?

___ hours

<table>
<thead>
<tr>
<th>Hours</th>
<th>Number of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>//</td>
</tr>
<tr>
<td>9</td>
<td>####</td>
</tr>
<tr>
<td>10</td>
<td>//</td>
</tr>
<tr>
<td>11</td>
<td>\</td>
</tr>
</tbody>
</table>

2. Add the parentheses needed to complete the number models.

\[ 4 \times 5 + 6 \times 9 = 74 \]

\[ 3 \times 16 - 7 = 27 \]

\[ 670 - 240 + 300 = 730 \]

3. Complete the fraction number story.

Caitlin ate \( \frac{3}{8} \) of the pizza.

Madison ate \( \frac{4}{8} \) of the pizza.

Kyle ate \( \frac{5}{8} \) of the pizza.

\( \frac{7}{8} \) of the pizza was left over.

4. What is this 3-dimensional shape called?

- rectangular prism
- pyramid
- sphere

How many vertices does it have?

___ vertices

5. Circle the unit you would use to measure each item.

- weight
  - oz
  - pound
  - ton

- length
  - inch
  - yard
  - mile

- length
  - cm
  - meter
  - kilometer

- of journal
- of car
- of paper
- clip

6. Write at least 5 names for \( \frac{4}{5} \).
A Mean (or Average) Number of Children

Activity 1 Make a bar graph of the data in the table.

<table>
<thead>
<tr>
<th>Number of Children</th>
<th>Kugel</th>
<th>Abuka</th>
<th>Lauer</th>
<th>Miller</th>
<th>Ellis</th>
<th>Bosnak</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families</td>
<td>Kugel</td>
<td>Abuka</td>
<td>Lauer</td>
<td>Miller</td>
<td>Ellis</td>
<td>Bosnak</td>
</tr>
</tbody>
</table>

The mean, or average, number of children in the six families in the table is ______.

Activity 2 (to be done later)
Use the table above. List the number of children in order.

The median number of children in the six families in the table is ____________.
A Mean (or Average) Number of Eggs

Activity 1 Make a bar graph of the data in the table.

<table>
<thead>
<tr>
<th>Ostrich Clutches</th>
<th>Number of Eggs</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>10</td>
</tr>
<tr>
<td>c</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>8</td>
</tr>
</tbody>
</table>

The mean, or average, number of eggs in the five clutches is _____.

Activity 2 (to be done later)

List the number of eggs in the clutches in order.

__________________
__________________
__________________
__________________
__________________

The median is _____ eggs per clutch.
1. Put these numbers in order from smallest to largest.
   0  6  -3  0.15

   ____  ____  ____  ____

   ____  ____  ____  ____

2. Write eight numbers that are factors of 30.

   ____  ____  ____  ____  ____  ____  ____  ____

   ____  ____  ____  ____  ____  ____  ____  ____

3. Practice lattice multiplication.
   \[39 \times 48 = \] __________

4. How many thirds are shaded?
   \[
   \begin{array}{ccc}
     & \square & \square \\
     \square & \square & \square \\
   \end{array}
   \]

   ____ thirds

   Write the fraction: _____

   Write the mixed number: _____

5. Read the scale and record the weight.

   \[
   \begin{array}{c}
     0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 10 \ 11 \ 12 \ 13 \ 14 \ 15 \ 16 \ 17 \ 18 \ 19 \ 20 \ 21 \ 22 \ 23 \ 24 \ 25 \ 26 \ 27 \ 28 \ 29 \ 30 \ 31 \ 32 \ 33 \ 34 \ 35 \ 36 \ 37 \ 38 \ 39 \ 40 \ 41 \ 42 \ 43 \ 44 \ 45 \ 46 \ 47 \ 48 \ 49 \ 50 \ 51 \ 52 \ 53 \ 54 \ 55 \ 56 \ 57 \ 58 \ 59 \ 60 \ 61 \ 62 \ 63 \ 64 \ 65 \ 66 \ 67 \ 68 \ 69 \ 70 \ 71 \ 72 \ 73 \ 74 \ 75 \ 76 \ 77 \ 78 \ 79 \ 80 \ 81 \ 82 \ 83 \ 84 \ 85 \ 86 \ 87 \ 88 \ 89 \ 90 \ 91 \ 92 \ 93 \ 94 \ 95 \ 96 \ 97 \ 98 \ 99 \ 100
   \end{array}
   \]

   ____ lb

6. Complete.
   1 gallon = _____ quarts

   _____ gallons = 12 quarts

   1 pint = _____ cups

   _____ pints = 14 cups

   1 cup = _____ fl oz

   _____ cups = 72 fl oz
Finding the Median and the Mean

1. The median (middle) arm span in my class is about _____ inches.
2. The mean (average) arm span in my class is about _____ inches.
3. Look at page 253 in your journal. Use the measurements for an adult and the second measurements for yourself to find the median and mean arm spans and heights for your group. Record the results in the table below.
   a. Find the median and mean arm spans of the adults for your group.
   b. Find the median and mean arm spans of the children for your group.
   c. Find the median and mean heights of the adults for your group.
   d. Find the median and mean heights of the children for your group.

   **Summary of Measurements for Your Group**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Adults</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median arm span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean arm span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean height</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Find the mean of each set of data.

4. High temperatures: 56°F, 62°F, 74°F, 68°F  Mean: _________°F
5. Low temperatures: 32°F, 42°F, 58°F, 60°F  Mean: _________°F
6. Ticket sales: $710, $650, $905  Mean: $ _________
7. Throws: 40 ft, 32 ft, 55 ft, 37 ft, 43 ft, 48 ft  Mean: _________ ft
Measurement Number Stories

1. The gas tank of Mrs. Rone’s car holds about 12 gallons. About how many gallons are in the tank when the gas gauge shows the tank to be $\frac{3}{4}$ full?

2. When the gas tank of Mrs. Rone’s car is about half empty, she stops to fill the tank. If gas costs $1.25 per gallon, about how much does it cost to fill the tank?

Harry’s room measures 11 feet by 13 feet. The door to his room is 3 feet wide. He wants to put a wooden border, or baseboard, around the base of the walls.

3. Draw a diagram of Harry’s room on the grid below. Show where the door is. Let each side of a grid square equal 1 foot.

4. How many feet of baseboard must Harry buy? __________

5. How many yards is that? __________

6. If baseboard costs $4.00 a yard, how much will Harry pay? __________

workspace
Math Boxes 10.8

1. The mean, or average, number of books read is _____.

<table>
<thead>
<tr>
<th>Books Read</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Max</td>
</tr>
<tr>
<td>Li</td>
</tr>
<tr>
<td>Kay</td>
</tr>
<tr>
<td>Tim</td>
</tr>
</tbody>
</table>

2. Fill in the unit box. Solve.

\[
\begin{align*}
490 \div 7 &= \underline{70} \\
4,200 \div 60 &= \underline{70} \\
3,500 \div 5 &= \underline{700} \\
\underline{70} &= 2,700 \div 90
\end{align*}
\]

3. Fill in the missing numbers on the number line.

\[
\begin{array}{cccc}
\_ & \_ & \_ & 2 & 2\frac{1}{5} \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ & \_ \\
\end{array}
\]

4. Explain why this shape is a regular polygon.

\[
\begin{align*}
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\_ & \_ \\
\end{align*}
\]

5. Grace built a rectangular prism out of base-10 blocks. She used 50 cm cubes to make the base. She put 9 more layers of cubes on top of that. What is the volume of the prism she built?

_____ cubic centimeters

6. Draw a line segment 5.6 centimeters long.

Draw a line segment 1.5 centimeters longer than the one you just drew.
# Calculator Memory

For each problem:
- Press the keys on the calculator.
- Guess what number is in memory.
- Record your guess.
- Press \( \text{MRC} \) to check your guess.
- Record the answer.

After each problem, press \( \text{MRC} \) twice and \( \text{ON/C} \) to clear everything.

The display should look like this \( 0 \) before you start a new problem.

<table>
<thead>
<tr>
<th>Press these keys</th>
<th>Your Guess</th>
<th>Press ( \text{MRC} ) Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> ( \text{MRC} ) ( \text{ON/C} ) ( 7 ) ( \text{M+} ) ( 9 ) ( \text{M+} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.</strong> ( 2 ) ( 0 ) ( \text{M+} ) ( 1 ) ( 6 ) ( \text{M–} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3.</strong> ( 5 ) ( \text{M+} ) ( 1 ) ( 0 ) ( \text{M+} ) ( 2 ) ( 0 ) ( \text{M+} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.</strong> ( 1 ) ( 2 ) ( + ) ( 8 ) ( \text{M+} ) ( 6 ) ( \text{M–} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5.</strong> ( 1 ) ( 5 ) ( – ) ( 9 ) ( \text{M+} ) ( 2 ) ( \text{M–} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.</strong> ( 2 ) ( 5 ) ( \text{M+} ) ( 7 ) ( + ) ( 8 ) ( \text{M–} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7.</strong> ( 3 ) ( 0 ) ( \text{M+} ) ( 1 ) ( 5 ) ( – ) ( 5 ) ( \text{M+} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.</strong> ( 2 ) ( + ) ( 2 ) ( \text{M+} ) ( 2 ) ( – ) ( 2 ) ( \text{M+} ) ( 2 ) ( + ) ( 2 ) ( \text{M+} )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Review** Solve.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9.</strong> ( 8 + (2 \times 7) = )</td>
<td><strong>10.</strong> ( (8 + 2) \times 7 = )</td>
</tr>
<tr>
<td><strong>11.</strong> ( (24 – 9) \times 2 = )</td>
<td><strong>12.</strong> ( 24 – (9 \times 2) = )</td>
</tr>
<tr>
<td><strong>13.</strong> ( )</td>
<td><strong>14.</strong> ( )</td>
</tr>
<tr>
<td><strong>15.</strong> ( )</td>
<td><strong>16.</strong> ( )</td>
</tr>
<tr>
<td><strong>17.</strong> ( )</td>
<td><strong>18.</strong> ( )</td>
</tr>
</tbody>
</table>

Use with Lesson 10.9.
1. Complete.

<table>
<thead>
<tr>
<th>Area of Base (square cm)</th>
<th>Height (cm)</th>
<th>Volume (cubic cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

2. Write 5 fractions greater than \( \frac{4}{10} \).

\[
\frac{5}{10} \quad \frac{6}{10} \quad \frac{7}{10} \quad \frac{8}{10} \quad \frac{9}{10}
\]

Write 5 fractions less than \( \frac{4}{10} \).

\[
\frac{1}{10} \quad \frac{2}{10} \quad \frac{3}{10} \quad \frac{1}{2} \quad \frac{3}{5}
\]

Write 3 other names for \( \frac{4}{10} \).

\[
\frac{2}{5} \quad \frac{4}{20} \quad \frac{8}{40}
\]

3. Shade \( \frac{3}{5} \) of the rectangle.

What fraction is not shaded?

\[
\frac{2}{5}
\]

An angle that measures 90° is called a ________ angle.

4. Draw an angle that measures approximately 90°.

5. Name 4 objects that weigh less than 1 pound.

\[
\text{pencil}, \text{stapler}, \text{rubber band}, \text{eraser}
\]

6. Complete.

\[
1 \text{ quart} = \underline{2} \text{ pints}
\]

\[
\underline{4} \text{ quarts} = 16 \text{ pints}
\]

\[
1 \text{ quart} = \underline{32} \text{ fl oz}
\]

\[
\underline{6} \text{ quarts} = 96 \text{ fl oz}
\]

\[
1 \text{ gallon} = \underline{128} \text{ fl oz}
\]
1. Find the mean (average) for the set of data.

Weekly allowances:
$15, $12, $5, $8

The mean (average) weekly allowance is $_____.

2. Fill in the missing numbers on the number line.

\[1\frac{7}{8} \quad \square \quad \square \quad 2\frac{1}{4} \quad \square\]

3. There are _____ lollipops in \(\frac{1}{5}\) of a box of 25 lollipops.

There are _____ minutes in \(\frac{5}{6}\) of an hour.

I have 7 stickers. This is \(\frac{1}{7}\) of a set of stickers. How many stickers are in the complete set?

_____ stickers

4. Circle the unit you would use to measure each item.

<table>
<thead>
<tr>
<th>area of desk top</th>
<th>square inch</th>
<th>square yard</th>
<th>cubic meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>volume of fish tank</td>
<td>square mile</td>
<td>cubic inch</td>
<td>gram</td>
</tr>
<tr>
<td>capacity of drinking glass</td>
<td>gallon</td>
<td>cup</td>
<td>quart</td>
</tr>
</tbody>
</table>

5. Solve.

\[(9 \times 9) - (43 + 9) = \square\]

\[\square = (5,600 \div 80) \div 2\]

\[\square = 963 + (567 - 439)\]

6. Complete the bar graph.

Mel caught 5 fish.
Jen caught 4 fish.
Tia caught 1 fish.
1. Fill in the table of waist-to-floor measurements for the class. This kind of table is called a frequency table.

<table>
<thead>
<tr>
<th>Waist-to-Floor Measurement (inches)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tallies</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
</tbody>
</table>

Total =

2. What is the median (middle value) of the measurements? _____ in.

3. What is the mean (average) of the measurements? _____ in.

4. The *mode* is the measurement, or measurements, that occur most often. What is the mode of the waist-to-floor measurements for the class? _____ in.
Bar Graph

Make a bar graph of the data in the frequency table on journal page 272.
Plotting Points on a Coordinate Grid

1. Draw a dot on the number line for each number your teacher dictates. Also write the number under the dot.

2. Draw a dot on the grid for each ordered pair. Write the letter for the ordered pair next to the dot.

   Sample
   A: (3,6)  
   B: (3,4)  
   C: (4,3)  
   D: (1,2)  
   E: (2,3)  
   F: (5,2)  
   G: (4,4)  
   H: (4,0)  
   I: (6,4)  
   J: (0,5)  
   K: (3,2)  
   L: (5,4)  
   M: (1,4)

3. Do you know the answer to this riddle?
   Which two letters contain nothing? To find out, draw the following line segments on the grid: MD, ME, EB, BK, GI, and LF.

4. Draw the following line segments on the coordinate grid.

   From (0,6) to (2,7); from (2,7) to (3,5); from (3,5) to (1,4); from (1,4) to (0,6)
   What kind of quadrangle is this?

   __________

5. From (7,0) to (7,4); from (7,4) to (5,3); from (5,3) to (5,1); from (5,1) to (7,0)
   What kind of quadrangle is this?

   __________
Using a Commuter Railroad Timetable

Solve the problems. Use your tool-kit clock if you need help.

1. About how many minutes is the trip from South Chicago to Randolph Street?

2. At what station will the train stop about 22 minutes after it leaves South Chicago?

3. At what station did the train stop about 25 minutes before it got to Randolph Street?

4. At what station does the train stop halfway through the trip—when about half of the total trip time has passed?

5. Marci got on the train at Cheltenham and got off at Kenwood. About how long was she on the train?

6. Make up two problems. Ask your partner to solve them.

Train Schedule

<table>
<thead>
<tr>
<th>Station</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Chicago</td>
<td>11:46 A.M.</td>
</tr>
<tr>
<td>83rd Street</td>
<td>11:49</td>
</tr>
<tr>
<td>Cheltenham</td>
<td>11:51</td>
</tr>
<tr>
<td>South Shore</td>
<td>11:55</td>
</tr>
<tr>
<td>Bryn Mawr</td>
<td>11:57</td>
</tr>
<tr>
<td>59th Street</td>
<td>12:04 P.M.</td>
</tr>
<tr>
<td>Hyde Park</td>
<td>12:08</td>
</tr>
<tr>
<td>Kenwood</td>
<td>12:09</td>
</tr>
<tr>
<td>McCormick Place</td>
<td>12:14</td>
</tr>
<tr>
<td>18th Street</td>
<td>12:15</td>
</tr>
<tr>
<td>Van Buren Street</td>
<td>12:19</td>
</tr>
<tr>
<td>Randolph Street</td>
<td>12:22</td>
</tr>
</tbody>
</table>
Math Boxes 10.11

1. Find the distance between each pair of numbers.
   4 and −19 _______
   −23 and 46 _______
   1,000 and −7,000 _______

2. Points scored by players in a basketball game:
   15, 22, 11, 12, 5
   The mean (average) number of points is ______.

3. What is the mode of the test scores for the class? ______%  
   
<table>
<thead>
<tr>
<th>Test Score</th>
<th>Number of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>///</td>
</tr>
<tr>
<td>95%</td>
<td>///</td>
</tr>
<tr>
<td>90%</td>
<td>/// ///</td>
</tr>
<tr>
<td>85%</td>
<td>/// ///</td>
</tr>
</tbody>
</table>

   
<table>
<thead>
<tr>
<th>Area of Base (square cm)</th>
<th>Height (cm)</th>
<th>Volume (cubic cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

5. Read the scale and record the weight.

   ____ lb

6. Complete.
   
   1 pint = _____ fluid ounces
   _____ pints = 48 fluid ounces

   1 half-gallon = _____ quarts
   _____ half-gallons = 6 quarts

   1 liter = ________ milliliters
1. When you flip a coin, it will land on ________ or ________.

2. On which color is the spinner most likely to land? ________

   Least likely to land? ________

   ![Spinner Diagram]

3. True or false? It is unlikely that the spinner will land on blue. ________

   ![Spinner Diagram]

4. True or false? There is an equal chance of taking a B or an R block out of the bag. ________

   ![Bag with Blocks Diagram]

5. You and a friend are playing a game with a 6-sided die. You win if you roll an odd number. Your friend wins if you roll an even number. Do you think this game is fair? Circle one.

   yes  no

6. You and a friend are playing a game with the spinner. You win if the spinner lands on purple. Your friend wins if the spinner lands on black. Do you think this game is fair?

   yes  no

![Spinner Diagram]
Can You Be Sure?

1. Make a list of things you are sure will happen.

________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

2. Make a list of things you are sure will not happen.

________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

3. Make a list of things you think may happen, but you are not sure.

________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

Use with Lesson 11.1.
Write the value of 7 for each column below.

<table>
<thead>
<tr>
<th>L</th>
<th>K</th>
<th>J</th>
<th>I</th>
<th>H</th>
<th>G</th>
<th>F</th>
<th>E</th>
<th>D</th>
<th>.</th>
<th>C</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td></td>
<td>7</td>
<td></td>
<td>7</td>
<td>7</td>
<td></td>
<td>7</td>
<td>7</td>
<td>7</td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

**Example** Column K: 70,000,000 or 70 million

1. Column A: ________________________________
2. Column G: ________________________________
3. Column F: ________________________________
4. Column I: ________________________________
5. Column C: ________________________________
6. Column B: ________________________________
7. Column L: ________________________________

Write the numbers that your teacher dictates.

8. ____________________ 9. ____________________ 10. ____________________
11. ____________________ 12. ____________________ 13. ____________________
Math Boxes 11.1

1. Plot and label each of the points listed below.

\[ A: (1, 4) \]
\[ B: (2, 2) \]
\[ C: (3, 1) \]
\[ D: (4, 3) \]

2. Cross out the names that do not belong.

\[
\begin{array}{ccc}
2 & 10 \\
100 & 500 & 1 \\
4 & 5 & 1 \frac{1}{5} \\
5 & 25
\end{array}
\]

3. Weight in pounds of newborn babies: 11, 8, 8, 7, 6

   The average (mean) weight is ____ pounds.

   The weight that occurs most often (mode) is ____ pounds.

4. Insert <, >, or =.

   \[ 5 \times 9 \quad \underline{\quad } \quad 7 \times 7 \]

   \[ 8 \times 9 \quad \underline{\quad } \quad 6 \times 8 \]

   \[ 4 \times 8 \quad \underline{\quad } \quad 3 \times 9 \]

   \[ 7 \times 8 \quad \underline{\quad } \quad 9 \times 9 \]

5. Use the partial-products algorithm to solve.

   \[
   \begin{array}{c}
   83 \\
   \times 44
   \end{array}
   \quad \begin{array}{c}
   72 \\
   \times 36
   \end{array}
   \]

6. There are 347 candles. A box holds 50 candles. How many full boxes of candles is that?

   ____ boxes

   How many candles are left over?

   ____ candles
Number Lines

Fill in the missing numbers.

1. [Number Line]

0 ______ ______ ______ ______ 100

2. [Number Line]

26,000 ______ ______ ______ ______ 27,000

Show the following on the metric ruler below.

3. Make a dot at 6.8 cm. Label it A.

4. Make a dot at 140 mm. Label it B.

5. Make a dot at 0.12 m. Label it C.

6. Make a dot at 9.5 cm. Label it D.

7. Make a dot at 12 mm. Label it E.

Challenge

Fill in the missing numbers.

8. [Number Line]

−0.5 ______ ______ ______ 0 ______ ______ ______ 0.5
1. Complete.

<table>
<thead>
<tr>
<th>Area of Base (square feet)</th>
<th>Height (feet)</th>
<th>Volume (cubic feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>800</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

2. Complete.

2 gallons = _____ quarts
______ gallons = 16 quarts

2 pints = _____ cups
______ pints = 20 cups

2 cups = _____ fl oz
______ cups = 32 fl oz

3. Circle the event(s) that you are sure will happen.

   It will be sunny tomorrow.

   A tossed quarter will land on either heads or tails.

   A rolled die will land on 6.

4. Name 3 objects that weigh about 1 gram.

   ____________________________
   ____________________________
   ____________________________

5. Fill in the oval next to the best estimate.

   \[ 5,634 - 2,987 = _____ \]
   
   0 about 2,000
   0 about 2,300
   0 about 2,600
   0 about 3,000

6. Write six numbers that are factors of 32.

   _____ _____ _____
   _____ _____ _____
Work with a partner. You need 10 coins.

1. Each of you takes turns tossing the 10 coins.

   For each toss you make, record the number of heads and the number of tails in the table.

   Toss the coins 5 times in all.

   Then find the total number of heads and tails.

   My total: heads _________ tails _________

   My partner’s total: heads _________ tails _________

   Our partnership total: heads _________ tails _________

2. Record the number of heads and the number of tails for the whole class.

   Number of heads: _________ Number of tails: _________

3. Suppose a jar contains 1,000 pennies. The jar is turned over. The pennies are dumped onto a table and spread out. Write your best guess for the number of heads and tails.

   Number of heads: _________ Number of tails: _________
1. The shaded square is ONE. Write a name for the shaded part of each of the other shapes. The first one is done for you.

\[
\begin{array}{cccc}
\frac{1}{2} & \quad & \quad & \quad
\end{array}
\]

2. The shaded rectangle is ONE. Write a name for the shaded part of each of the other shapes.

\[
\begin{array}{cccc}
\quad & \quad & \quad & \quad
\end{array}
\]

Write <, >, or = to compare fractions.

3. \(\frac{3}{5}\) \(\frac{1}{2}\) 4. \(\frac{3}{8}\) \(\frac{3}{4}\) 5. \(\frac{4}{6}\) \(\frac{5}{9}\) 6. \(\frac{3}{4}\) \(\frac{9}{12}\) 7. \(\frac{7}{10}\) \(\frac{6}{12}\)

8. Choose one comparison above and explain how you found your answer.

9. Write numbers in this name-collection box.

10. Make your own name-collection box. Write a fraction on the tag. Write numbers in the box.
1. Plot and label each of the points listed below.

   A: (1,2)  
   B: (3,3)  
   C: (4,1)  
   D: (2,4)

2. Fill in the unit box.

   Solve.

   \[ 5 \times 8 = \ldots \]
   \[ 4 \times 9 = \ldots \]
   \[ \ldots = 6 \times 7 \]
   \[ \ldots = 7 \times 9 \]
   \[ \ldots = 8 \times 8 \]

3. Goals scored by players during a soccer season: 14, 12, 8, 7, 8, 11

   The average (mean) number of goals is \ldots .

   The number of goals that occurs most often (mode) is \ldots .

4. Is a 6-sided die more likely to land on an odd number or an even number? Explain.

   \[
   \begin{align*}
   \text{odd} & : 1, 3, 5 \\
   \text{even} & : 2, 4, 6
   \end{align*}
   \]

   \[
   \begin{align*}
   \text{odd probability} & = \frac{3}{6} \\
   \text{even probability} & = \frac{3}{6}
   \end{align*}
   \]

   \[
   \text{Since both are equal, the die is equally likely to land on an odd or an even number.}
   \]

5. Practice lattice multiplication.

   \[ 56 \times 78 = \ldots \]

6. Fill in the missing numbers on the number line.

   \[
   \begin{array}{ccccccc}
   \ldots & \ldots & -4 & 2 & \ldots \\
   \end{array}
   \]
Math Message
Color each circle so that it matches the description.

1. \( \frac{3}{4} \) red, \( \frac{2}{8} \) blue
2. \( \frac{1}{2} \) red, \( \frac{1}{3} \) yellow, \( \frac{1}{6} \) blue
3. \( \frac{2}{5} \) red, \( \frac{2}{5} \) blue, \( \frac{1}{5} \) yellow

Spinner Experiments
Tape *Math Masters*, page 180, to your desk or table.

Make a spinner on the first circle.

4. Spin the paper clip 10 times. Tally the number of times the paper clip lands on the shaded part and on the white part.

<table>
<thead>
<tr>
<th>Lands On</th>
<th>Tallies</th>
</tr>
</thead>
<tbody>
<tr>
<td>shaded part</td>
<td></td>
</tr>
<tr>
<td>white part</td>
<td></td>
</tr>
</tbody>
</table>

Make a spinner on the second circle.

5. Record results for the whole class.

<table>
<thead>
<tr>
<th>Lands On</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>shaded part</td>
<td></td>
</tr>
<tr>
<td>white part</td>
<td></td>
</tr>
</tbody>
</table>

6. Spin the paper clip 10 times. Tally the number of times the paper clip lands on the shaded part and on the white part.

7. Record results for the whole class.

<table>
<thead>
<tr>
<th>Lands On</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>shaded part</td>
<td></td>
</tr>
<tr>
<td>white part</td>
<td></td>
</tr>
</tbody>
</table>

8. The paper clip has a better chance of landing on the ____________ part of the spinner than on the ____________ part.
Degrees in a Turn

Tell how many degrees are in each turn.

1. full turn _______
2. half-turn _______
3. quarter-turn _______
4. \(\frac{3}{4}\) turn _______
5. \(\frac{1}{3}\) turn _______
6. \(\frac{2}{3}\) turn _______
7. \(\frac{1}{6}\) turn _______
8. \(\frac{2}{6}\) turn _______
9. \(\frac{3}{6}\) turn _______
10. \(\frac{5}{6}\) turn _______

Challenge

Tell how many degrees are in each turn.

11. \(\frac{1}{2}\) of a half-turn _______
12. \(\frac{1}{2}\) of a quarter-turn _______
13. \(\frac{1}{3}\) of a half-turn _______
14. \(\frac{1}{3}\) of a quarter-turn _______

Tell what fraction of a full turn each angle is.

15. \(30^\circ\)_______
16. \(45^\circ\)_____
1. Write 5 fractions that are greater than \( \frac{9}{12} \).

\[
\frac{3}{4} \quad \frac{1}{3} \quad \frac{5}{6} \quad \frac{7}{8} \quad \frac{11}{12}
\]

Write 5 fractions that are less than \( \frac{9}{12} \).

\[
\frac{1}{2} \quad \frac{2}{3} \quad \frac{3}{4} \quad \frac{4}{5} \quad \frac{5}{6}
\]

Write 3 other names for \( \frac{9}{12} \).

\[
\frac{3}{4} \quad \frac{6}{8} \quad \frac{9}{12}
\]

2. Complete.

2 quarts = _____ pints

______ quarts = 30 pints

2 quarts = _____ fl oz

______ quarts = 96 fl oz

2 gallons = _____ fl oz

3. Complete.

<table>
<thead>
<tr>
<th>Area of Base (square inches)</th>
<th>Height (inches)</th>
<th>Volume (cubic inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td>900</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>1,800</td>
</tr>
<tr>
<td>70</td>
<td></td>
<td>4,200</td>
</tr>
</tbody>
</table>

4. Write the number that has

0 in the thousandths place

4 in the ones place

1 in the tenths place

8 in the hundredths place

____ · ____ ____ ____

5. Describe 2 events that have a “good chance” of happening.

__________________________________________

__________________________________________

__________________________________________

__________________________________________

6. A van holds 8 people. 125 people are going to the concert. How many vans are needed?

_____ vans

Will all of the vans be full? _____
1. Write the ordered pair for each letter on the grid.

   A: (__, __)  
   B: (__, __)  
   C: (__, __)  
   D: (__, __)

2. Color the circle so that it matches the description.

   \( \frac{1}{2} \) blue  
   \( \frac{1}{3} \) green  
   \( \frac{1}{6} \) yellow

   Which color would you expect a spinner to land on most often?  __________

3. Number of books read by children during the summer: 9, 9, 5, 15, 3, 9, 6

   The average (mean) number of books read is  ____.

   The number of books read that occurs most often (mode) is  ____.

4. Insert <, >, or =.

   \[ 4 \times 6 \quad \square \quad 2 \times 9 \]

   \[ 7 \times 7 \quad \square \quad 5 \times 9 \]

   \[ 6 \times 7 \quad \square \quad 9 \times 4 \]

   \[ 8 \times 6 \quad \square \quad 9 \times 7 \]

5. Use the partial-products algorithm to solve.

   \[
   \begin{array}{c}
   \times 24 \\
   77 \\
   \hline
   \end{array}
   \]

   \[
   \begin{array}{c}
   \times 61 \\
   93 \\
   \hline
   \end{array}
   \]

6. 6,570,321

   The digit in the thousands place is  ____.

   The digit in the millions place is  ____.

   The digit in the hundred-thousands place is  ____.

   The digit in the tens place is  ____.
Math Message

1. Use exactly six different colors. Make a spinner so that the paper clip has the same chance of landing on any one of the six colors.

   *(Hint: Into how many equal parts should the circle be divided?)*

2. Use only blue and red. Make a spinner so that the paper clip is twice as likely to land on blue as it is to land on red.
Making Spinners (cont.)

3. Use only blue, red, and green. Make a spinner so that the paper clip:

- has the **same chance** of landing on blue and on red

and

- is **less likely** to land on green than on blue.

4. Use only blue, red, and yellow. Make a spinner so that the paper clip:

- is **more likely** to land on blue than on red

and

- is **less likely** to land on yellow than on blue.
Parentheses Puzzles

Circle the expressions that belong in each name-collection box.

1. \[ \begin{array}{ll}
7 & (5 + 5) - (3 - 1) \\
7 \times (8 - 7) & (3 \times 4) - 5 \\
(3 \times 4) - 5 & (3 \times 7) \div 7 \\
(12 + 2) \div 2 & (4 \times 7) \div (10 - 6) \\
(7 \times 1) \times 7 & \\
\end{array} \]

2. \[ \begin{array}{ll}
25 & (4 + 1) \times (6 - 1) \\
(4 \times 5) + 5 & 100 \div (6 - 1) \\
(4 \times 5) + 5 & (2 \times 10) \times 5 \\
25 + (0 \times 10) & 50 - (30 - 10) \\
(6 \times 5) - (1 \times 5) & \\
\end{array} \]

3. Fill in the tag.
Circle correct names.
Cross out incorrect names.
Add 2 names.

Add parentheses, ( ), to complete the number models.

4. \[ 7 \times 8 - 8 = 48 \]
5. \[ 7 \times 8 - 8 = 0 \]
6. \[ 280 = 85 - 45 \times 22 - 15 \]
7. \[ 80 \times 3 + 4 = 560 \]

Complete the number models.

8. \[ \underline{\phantom{123}} = (24 \div 6) - 2 \]
9. \[ \underline{\phantom{123}} = 24 \div (6 - 2) \]
10. \[ (7 + 3) \times (9 + 6) = \underline{\phantom{123}} \]
11. \[ 7 + (3 \times 9) + 6 = \underline{\phantom{123}} \]

(two hundred ninety-two) Use with Lesson 11.5.
Drawing Blocks

Color the blocks in the bags blue. Then fill in the blanks by answering this question: How many red blocks would you put into each bag?

1. If I wanted to have an equal chance of taking out red or blue, I would put in _____ red block(s).

2. If I wanted to be more likely to take out blue than red, I would put in _____ red block(s).

3. If I wanted to be sure of taking out a blue block, I would put in _____ red block(s).

4. If I wanted to take out a red block about 3 times as often as a blue one, I would put in _____ red block(s).

5. If I wanted to take out a red block about half as often as a blue one, I would put in _____ red block(s).

6. If I wanted to take out a red block about \( \frac{1}{3} \) of the time, I would put in _____ red block(s).

Challenge

7. If I wanted to take out a red block about \( \frac{2}{3} \) of the time, I would put in _____ red block(s).
The Best Pizza

<table>
<thead>
<tr>
<th>Pizza Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>10-inch</td>
</tr>
<tr>
<td>12-inch</td>
</tr>
<tr>
<td>14-inch</td>
</tr>
<tr>
<td>serves 2–3</td>
</tr>
<tr>
<td>plain cheese</td>
</tr>
<tr>
<td>each added topping</td>
</tr>
</tbody>
</table>

*Choices for added toppings:* sausage, mushrooms, red or green peppers, onions, pepperoni, spinach, ground beef, extra cheese

1. How much does a 10-inch pizza with 1 added topping cost? $_________
2. How much does a 12-inch pizza with 2 added toppings cost? $_________
3. For the class pizza party, the class votes to order five 14-inch pizzas with one added topping on each pizza. How much will the pizzas cost? $_________
4. Which costs more? Circle your answer.
   - 3 of the 10-inch pizzas with 2 added toppings each
   - 2 of the 14-inch pizzas with 1 added topping each
5. Write and solve your own pizza number story.

   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________
Math Boxes 11.6

1. Find the volume of the rectangular prism.

   Volume = ____ cubic units

2. Write six numbers that are factors of 100.

   _____  _____  _____
   _____  _____  _____

3. A large bag of candy costs $3.59. What is the cost of 6 bags?
   Fill in the oval next to the best estimate.
   0 $15.00
   0 $18.00
   0 $21.00
   0 $24.00

4. Put the fractions in order from smallest to largest.
   \( \frac{1}{5}, \frac{1}{7}, \frac{3}{4}, \frac{5}{6}, \frac{99}{100} \)
   _____, _____, _____, _____, _____

5. Describe 2 events that are "not likely" to happen.

   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________

6. Draw a shape with an area of 10 square centimeters.

   What is the perimeter of your shape? _____ centimeters
Each problem is about marbles in a jar. The marbles may be black, white, or striped. A marble is drawn at random from the jar (without looking into the jar). The kind of marble is tallied. Then the marble is returned to the jar.

- Decide, from the description of the random draws in each problem, how many marbles of each kind are in the jar.
- Shade the circles in the jar to match your decision.

1. From 100 random draws, you get:
   - a black marble ● 62 times
   - a white marble ○ 38 times

2. From 50 random draws, you get:
   - a black marble ● 30 times
   - a white marble ○ 16 times
   - a striped marble □ 4 times

3. From 100 random draws, you get:
   - a black marble ● 23 times
   - a white marble ○ 53 times
   - a striped marble □ 24 times
Math Boxes 11.7

1. Write the ordered pair for each letter on the grid.

A: (___,___)  
B: (___,___)  
C: (___,___)  
D: (___,___)  

2. Write at least 5 names in the name-collection box.

3. Laps completed during practice by members of the swim team:
   10, 15, 20, 15, 15

   The average (mean) number of laps completed is _____.

   The number of laps that occurs most often (mode) is _____.

4. Design a spinner that has an equal chance of landing on red as it does of landing on green.

5. Practice lattice multiplication.
   \[73 \times 39 = \underline{____}______\]

6. If I wanted to have an equal chance of taking out a circle or a square, I would put in ____ circle(s).
Math Boxes 11.8

1. Find the volume of the rectangular prism.

Volume = ____ cubic units

2. Describe 2 events that are “impossible.”

3. 10 marbles in a jar. 100 random draws.
   You get:
   a black marble ● 32 times
   a white marble ○ 68 times
   How many marbles of each kind do you think are in the jar?
   ____ black marbles
   ____ white marbles

   2 pints = ____ fl oz
   ____ pints = 96 fl oz
   2 half-gallons = ____ quarts
   ____ half-gallons = 10 quarts
   5 liters = ________ milliliters

5. If I wanted to take out a square about 4 times as often as a circle, I would put in ____ square(s).

6. 9,457,023
   The digit in the ten-thousands place is ____.
   The digit in the millions place is ____.
   The digit in the hundreds place is ____.
   The digit in the ones place is ____.
Estimate—Then Calculate

Solve only the problems whose sum or difference is greater than 500.

1.  
   825
   \[ \underline{ - 347} \]

2.  
   984
   \[ \underline{ - 392} \]

3.  
   658
   \[ \underline{ - 179} \]

4.  
   324
   \[ + 161 \]

5.  
   728
   \[ \underline{ - 232} \]

6.  
   227
   \[ + 285 \]

7.  
   174
   \[ + 338 \]

8.  
   881
   \[ \underline{ - 293} \]

9.  
   1,294
   \[ \underline{ - 776} \]
**Math Boxes 11.9**

1. A baker packs 835 doughnuts into boxes that hold a dozen doughnuts each. How many full boxes does he pack?
   
   ____ boxes

   How many doughnuts are left over?
   
   ____ doughnuts

2. Design a spinner that is twice as likely to land on blue as it is to land on yellow.

3. Draw a shape with a perimeter of 20 centimeters.

   What is the area of your shape?
   
   ____ square centimeters

4. If I wanted to take out a circle about \( \frac{1}{3} \) of the time, I would put in ____ circle(s).

5. Use the partial-products algorithm to solve.
   
   \[
   \begin{array}{c}
   82 \\
   \times 35 \\
   \hline
   
   94 \\
   \times 76
   \end{array}
   \]

6. 10 marbles in a jar.
   100 random draws.

   You get:
   
   a black marble \( \bullet \) 23 times
   a white marble \( \bigcirc \) 77 times

   How many marbles of each kind do you think are in the jar?
   
   ____ black marbles
   ____ white marbles

---

300 (three hundred)
1. Plot and label each of the points listed below.

A: (0,3)  
B: (3,0)  
C: (2,4)  
D: (4,2)

2. Write a fraction in the tag. Fill the name-collection box with equivalent fractions.

3. Find the volume of the rectangular prism.

Volume = _____ cubic units

4. Put these numbers in order from smallest to largest.

0.45, −6, −0.3, 4, −4.5

5. Write the number that has

5 in the thousandths place  
6 in the ones place  
3 in the tenths place  
9 in the hundredths place


\[
\begin{align*}
5,673 + 489 &= 6,162 \\
4,008 - 3,959 &= 59
\end{align*}
\]
The following pages will be used throughout the remainder of the school year.

<table>
<thead>
<tr>
<th>Special Pages</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>National High/Low Temperature Project</td>
<td>303</td>
</tr>
<tr>
<td>Temperature Ranges</td>
<td>304 and 305</td>
</tr>
<tr>
<td>Length of Day</td>
<td>306 and 307</td>
</tr>
<tr>
<td>Sunrise and Sunset Record</td>
<td>308</td>
</tr>
</tbody>
</table>

For the National High/Low Temperature Project on journal page 303, you will continue to record the following data: the U.S. city with the highest temperature and the U.S. city with the lowest temperature for the same date. You will do this every week or whenever your teacher tells you. This is the same thing that you did on journal page 160 in your *Math Journal 1*.

The data that you recorded on journal pages 160 and 303 will be used in Unit 7 on journal pages 304 and 305 to make a Temperature Ranges graph. Your teacher will teach you how to do this.

On journal page 306, you will have to copy your graph from page 158 in your *Math Journal 1*, and then continue to add to the graph on pages 306 and 307.

On journal page 308, you will continue to collect data as you did on page 158 in your *Math Journal 1*. You will continue to record the date, and the sunrise and sunset times for that date.

During Unit 11, you will use the information that you have collected on these pages and discuss the graphs that you have made.
# National High/Low Temperatures Project

<table>
<thead>
<tr>
<th>Date</th>
<th>Highest Temperature</th>
<th>Lowest Temperature</th>
<th>Difference in Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Place</td>
<td>Temperature</td>
<td>Place</td>
</tr>
<tr>
<td></td>
<td>°F</td>
<td>°F</td>
<td>°F</td>
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Temperature Ranges (cont.)

Date

110°F
100°F
90°F
80°F
70°F
60°F
50°F
40°F
30°F
20°F
10°F

Date

Use with Lesson 7.8.
### Length of Day

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>15 hr 0 min</td>
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<tr>
<td></td>
<td>14 hr 0 min</td>
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<td>13 hr 0 min</td>
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<td>12 hr 0 min</td>
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<td>11 hr 0 min</td>
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<td>10 hr 0 min</td>
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<td>9 hr 0 min</td>
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<td>8 hr 0 min</td>
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</tbody>
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### Length of Day

<table>
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<tbody>
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<td>16 hr 0 min</td>
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<tr>
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<tr>
<td>15 hr 0 min</td>
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<td>8 hr 0 min</td>
<td></td>
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<td></td>
<td>Date</td>
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</table>
### Sunrise and Sunset Record

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<th>Time of Sunrise</th>
<th>Time of Sunset</th>
<th>Length of Day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>hr min</td>
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<td>hr min</td>
</tr>
</tbody>
</table>
×, ÷ Fact Triangles 3
### Fraction Cards

<p>| | | | |</p>
<table>
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</thead>
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<td>1/3</td>
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</tr>
<tr>
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<td>1/4</td>
<td>2/3</td>
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</tr>
<tr>
<td>1/6</td>
<td>1/2</td>
<td>0/2</td>
<td>4/6</td>
</tr>
<tr>
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<td>0/4</td>
<td>2/8</td>
<td>4/4</td>
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</tbody>
</table>

Use with Lesson 8.4.
\[
\begin{array}{cccc}
\frac{6}{12} & \frac{3}{9} & \frac{8}{12} & \frac{5}{10} \\
\frac{2}{12} & \frac{5}{6} & \frac{9}{12} & \frac{1}{6} \\
\frac{2}{10} & \frac{3}{12} & \frac{6}{9} & \frac{1}{5} \\
\frac{8}{10} & \frac{10}{12} & \frac{4}{5} & \frac{4}{12}
\end{array}
\]