1. Determine the perimeter and area of rectangles A and B.

\[ A = 40 \text{ units}^2 \]
\[ P = 26 \text{ units} \]

\[ A = 35 \text{ units}^2 \]
\[ P = 24 \text{ units} \]

2. Determine the perimeter and area of each rectangle.
   a. \[ 7 \text{ cm} \]
      \[ 3 \text{ cm} \]
      \[ P = 20 \text{ cm} \]
      \[ A = 21 \text{ cm}^2 \]
   b. \[ 4 \text{ cm} \]
      \[ 9 \text{ cm} \]
      \[ P = 26 \text{ cm} \]
      \[ A = 36 \text{ cm}^2 \]

3. Determine the perimeter of each rectangle.
   a. \[ 149 \text{ m} \]
      \[ 76 \text{ m} \]
      \[ P = 450 \text{ m} \]
   b. \[ 2 \text{ m} \ 10 \text{ cm} \]
      \[ 45 \text{ cm} \]
      \[ P = 510 \text{ cm} \text{ or } 5 \text{ m} \ 10 \text{ cm} \]
4. Given the rectangle's area, find the unknown side length.
   a. \[ \text{6 cm} \quad \text{60 square cm} \quad x \text{ cm} \quad x = \frac{60}{6} = 10 \text{ cm} \]
   b. \[ \text{5 m} \quad \text{25 square m} \quad x \text{ m} \quad x = \frac{25}{5} = 5 \text{ m} \]

5. Given the rectangle's perimeter, find the unknown side length.
   a. \[ P = 180 \text{ cm} \quad 40 \text{ cm} \quad x \text{ cm} \quad x = \frac{180 - 40}{2} = 70 \text{ cm} \]
   b. \[ P = 1,000 \text{ m} \quad 150 \text{ m} \quad x \text{ m} \quad x = \frac{1,000 - 150}{2} = 425 \text{ m} \]

6. Each of the following rectangles has whole number side lengths. Given the area and perimeter, find the length and width.
   a. \[ A = 32 \text{ square cm} \quad P = 24 \text{ cm} \quad l = \frac{32}{8} = 8 \text{ cm} \]
   b. \[ A = 36 \text{ square m} \quad P = 30 \text{ m} \quad w = \frac{36}{3} = 12 \text{ m} \]
1. A rectangular pool is 7 feet wide. It is 3 times as long as it is wide.
   
   a. Label the diagram with the dimensions of the pool.
      
      \[
      \begin{array}{c}
      21 \text{ ft} \\
      7 \text{ ft} \\
      \end{array}
      \]
      
   b. Find the perimeter of the pool.
      
      \[7 + 7 + 21 + 21 = 56 \text{ ft}\]

2. A poster is 3 inches long. It is 4 times as wide as it is long.
   
   a. Draw a diagram of the poster and label its dimensions.
      
      \[
      \begin{array}{c}
      12'' \\
      3'' \\
      \end{array}
      \]
      
   b. Find the perimeter and area of the poster.
      
      \[
      P = 30 \text{ in} \\
      A = 36 \text{ in}^2
      \]
3. The area of a rectangle is 36 square centimeters and its length is 9 centimeters.
   a. What is the width of the rectangle? 4 cm
   b. Elsa wants to draw a second rectangle that is the same length but is 3 times as wide. Draw and label Elsa’s second rectangle.
   c. What is the perimeter of Elsa’s second rectangle? 42 cm

4. The area of Nathan’s bedroom rug is 15 square feet. The longer side measures 5 feet. His living room rug is twice as long and twice as wide as the bedroom rug.
   a. Draw and label a diagram of Nathan’s bedroom rug. What is its perimeter?
   b. Draw and label a diagram of Nathan’s living room rug. What is its perimeter?
c. What is the relationship between the two perimeters?

The perimeter of the living room rug is double the perimeter of the bedroom rug.

d. Find the area of the living room rug using the formula \( A = l \times w \).

\[
10 \times 6 = 60 \text{ ft}^2
\]

e. The living room rug has an area that is how many times that of the bedroom rug?

\[
4 \text{ times as much } \left(15 \times 4 = 60\right)
\]

f. Compare how the perimeter changed with how the area changed between the two rugs. Explain what you notice using words, pictures, or numbers.

When the sides are doubled,
the perimeter will double but the area will quadruple.
Solve the following problems. Use pictures, numbers, or words to show your work.

1. Katie cut out a rectangular piece of wrapping paper that was 2 times as long and 3 times as wide as the box that she was wrapping. The box was 5 inches long and 4 inches wide. What is the perimeter of the wrapping paper that Katie cut?

2. Alexis has a rectangular piece of red paper that is 4 centimeters wide. Its length is twice its width. She glues a rectangular piece of blue paper on top of the red piece measuring 3 centimeters by 7 centimeters. How many square centimeters of red paper will be visible on top?
3. Brinn’s rectangular kitchen has an area of 81 square feet. The kitchen is 9 times as many square feet as Brinn’s pantry. If the rectangular pantry is 3 feet wide, what is the length of the pantry?

\[
\frac{9 \times 9 = 81 \text{ sq ft}}{\text{PANTRY}}
\]

\[
\begin{array}{c}
A = 9 \\
3 \text{ ft}
\end{array}
\]

- length: 3 ft
- of pantry

4. The length of Marshall’s rectangular poster is 2 times its width. If the perimeter is 24 inches, what is the area of the poster?

\[
P = 24 \quad 2 \times W = 8 \quad 4 \times 8 = 32 \text{ in}^2
\]
Example:

\[ 5 \times 10 = \boxed{50} \]

5 ones \times 10 = \boxed{5 \text{ tens}}

Draw place value disks and arrows as shown to represent each product.

1. \[ 7 \times 100 = \boxed{700} \]
   
   \[ 7 \times 10 \times 10 = \boxed{700} \]
   
   7 ones \times 100 = \boxed{7 \text{ hundreds}}

2. \[ 7 \times 1,000 = \boxed{7,000} \]
   
   \[ 7 \times 10 \times 10 \times 10 = \boxed{7,000} \]
   
   7 ones \times 1,000 = \boxed{7 \text{ thousands}}

3. Fill in the blanks in the following equations.
   
   a. \[ 8 \times 10 = \boxed{80} \]
   
   b. \[ \boxed{100} \times 8 = 800 \]
   
   c. \[ 8,000 = \boxed{8} \times 1,000 \]
   
   d. \[ 10 \times 3 = \boxed{30} \]
   
   e. \[ 3 \times \boxed{1,000} = 3,000 \]
   
   f. \[ \boxed{100} \times 3 = 300 \]
   
   g. \[ 1,000 \times 4 = \boxed{4,000} \]
   
   h. \[ \boxed{40} = 10 \times 4 \]
   
   i. \[ 400 = \boxed{4} \times 100 \]
Draw place value disks and arrows to represent each product.

4. \[15 \times 10 = \boxed{150}\]
   
   (1 ten 5 ones) \times 10 = \boxed{15} \text{ tens}

5. \[17 \times 100 = \boxed{1700}\]
   
   \[17 \times 10 \times 10 = \boxed{1700}\]
   
   (1 ten 7 ones) \times 100 = \boxed{17} \text{ hundreds}

6. \[36 \times 1,000 = \boxed{36,000}\]
   
   \[36 \times 10 \times 10 \times 10 = \boxed{36,000}\]
   
   (3 tens 6 ones) \times 1,000 = \boxed{36} \text{ thousands}

Decompose each multiple of 10, 100, or 1,000 before multiplying.

7. \[2 \times 80 = 2 \times 8 \times \boxed{10}\]
   
   \[160 = 16 \times 10 = \boxed{160}\]

8. \[2 \times 400 = 2 \times \boxed{4} \times \boxed{100}\]
   
   \[
   = \underline{8} \times \boxed{100} = \boxed{800}
   \]

9. \[5 \times 5,000 = \boxed{5} \times \boxed{5} \times \boxed{1000}\]
   
   \[= 25 \times 1000 = \boxed{25000}\]

10. \[7 \times 6,000 = \boxed{7} \times \boxed{6} \times \boxed{1000}\]
    
    \[= \boxed{42} \times \boxed{1000} = \boxed{42000}\]
Draw place value disks to represent the value of the following expressions.

1. \(5 \times 2 = \underline{10}\)
   
   5 times \(\underline{2}\) ones is \(\underline{10}\) ones.

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

2. \(5 \times 20 = \underline{100}\)
   
   5 times \(\underline{2}\) tens is \(\underline{2}\) hundred.

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

3. \(5 \times 200 = \underline{1000}\)
   
   5 times \(\underline{2}\) hundreds is \(\underline{1}\) thousand.

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

4. \(5 \times 2,000 = \underline{10,000}\)
   
   5 times \(\underline{2}\) thousand is \(\underline{10}\) thousands.

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
 &   &   &   \\
\end{array}
\]

EUREKA MATH

Lesson 5: Multiply multiples of 10, 100, and 1,000 by single digits, recognizing patterns.
5. Find the product.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>20 × 9</td>
<td>180</td>
<td>b.</td>
<td>6 × 70</td>
</tr>
<tr>
<td>c.</td>
<td>7 × 700</td>
<td>4900</td>
<td>d.</td>
<td>3 × 900</td>
</tr>
<tr>
<td>e.</td>
<td>9 × 90</td>
<td>810</td>
<td>f.</td>
<td>40 × 7</td>
</tr>
<tr>
<td>g.</td>
<td>600 × 6</td>
<td>3600</td>
<td>h.</td>
<td>8 × 6,000</td>
</tr>
<tr>
<td>i.</td>
<td>5 × 70</td>
<td>350</td>
<td>j.</td>
<td>5 × 80</td>
</tr>
<tr>
<td>k.</td>
<td>5 × 200</td>
<td>1000</td>
<td>l.</td>
<td>6,000 × 5</td>
</tr>
</tbody>
</table>

6. At the school cafeteria, each student who ordered lunch gets 6 chicken nuggets. The cafeteria staff prepares enough for 300 kids. How many chicken nuggets does the cafeteria staff prepare altogether?

6 × 300 = 1800 chicken nuggets

7. Jaelynn has 30 times as many stickers as her brother. Her brother has 8 stickers. How many stickers does Jaelynn have?

30 × 8 = 240 stickers

8. The flower shop has 40 times as many flowers in one cooler as Julia has in her bouquet. The cooler has 120 flowers. How many flowers are in Julia’s bouquet?

40 × _ = 120

3 flowers
Represent the following problem by drawing disks in the place value chart.

1. To solve $30 \times 60$, think:

\[
\begin{align*}
&30 \times (6 \times 10) = \underline{1800} \\
&30 \times 60 = \underline{1800}
\end{align*}
\]

2. Draw an area model to represent $30 \times 60$.

3 tens $\times$ 6 tens = \underline{18} hundreds

3. Draw an area model to represent $20 \times 20$.

2 tens $\times$ 2 tens = \underline{4} hundreds

$20 \times 20 = \underline{4}$
4. Draw an area model to represent $40 \times 60$.

\[ 40 \times 60 = 2400 \]

4 tens $\times$ 6 tens = 24 hundreds

Rewrite each equation in unit form and solve.

5. $50 \times 20 = \underline{1000}$

5 tens $\times$ 2 tens = 10 hundreds

6. $30 \times 50 = \underline{1500}$

3 tens $\times$ 5 tens = 15 hundreds

7. $60 \times 20 = \underline{1200}$

6 tens $\times$ 2 tens = 12 hundreds

8. $40 \times 70 = \underline{2800}$

4 tens $\times$ 7 tens = 28 hundreds

9. There are 60 seconds in a minute and 60 minutes in an hour. How many seconds are in one hour?

\[ 60 \times 60 = 3600 \text{ seconds in an hour} \]

10. To print a comic book, 50 pieces of paper are needed. How many pieces of paper are needed to print 40 comic books?

\[ 50 \times 40 = 2000 \text{ pieces of paper} \]
1. Represent the following expressions with disks, regrouping as necessary, writing a matching expression, and recording the partial products vertically.

a. $3 \times 24$

   - Tens: 2 (with 1 regrouped to ones)
   - Ones: 4

   Total: 72

b. $3 \times 42$

   - Hundreds: 1
   - Tens: 2 (with 1 regrouped to ones)
   - Ones: 0

   Total: 126

c. $4 \times 34$

   - Hundreds: 1
   - Tens: 3 (with 1 regrouped to ones)
   - Ones: 4

   Total: 136
2. Represent the following expressions with disks, regrouping as necessary. To the right, record the partial products vertically.

a. \(4 \times 27\)

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
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<td>00</td>
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<td></td>
<td>00</td>
<td>00000</td>
</tr>
</tbody>
</table>

\[7 \times 4 = 28\]
\[20 \times 4 = 80\]

b. \(5 \times 42\)

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000</td>
<td>00</td>
<td>00</td>
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<td>00</td>
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</tr>
<tr>
<td>00000</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

\[5 \times 40 = 200\]
\[5 \times 2 = 10\]

3. Cindy says she found a shortcut for doing multiplication problems. When she multiplies \(3 \times 24\), she says, "\(3 \times 4\) is 12 ones, or 1 ten and 2 ones. Then, there's just 2 tens left in 24, so add it up, and you get 3 tens and 2 ones." Do you think Cindy's shortcut works? Explain your thinking in words and justify your response using a model or partial products.

Cindy forgot to do \(3 \times 20\) in her shortcut.

\[
\begin{array}{c|c|c}
3 & 20 & 4 \\
& 60 & 12 \\
\end{array}
\]
1. Represent the following expressions with disks, regrouping as necessary, writing a matching expression, and recording the partial products vertically as shown below.

a. $2 \times 424$

\[
\begin{array}{ccc}
\text{hundreds} & \text{tens} & \text{ones} \\
\begin{array}{c}
\circ \circ \circ \circ \circ \\
0 \ 0 \ 0 \ 0 \\
\end{array} & \begin{array}{c}
\circ \\
0 \\
\end{array} & \begin{array}{c}
\circ \circ \circ \\
0 \ 0 \\
\end{array}
\end{array}
\]

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

\[
\begin{array}{c}
8 \\
40 \\
800 \\
\hline
848
\end{array}
\]

$2 \times 4 \text{ hundreds} + 2 \times 2 \text{ tens} + 2 \times 4 \text{ ones}$

b. $3 \times 424$

\[
\begin{array}{ccc}
\text{hundreds} & \text{tens} & \text{ones} \\
\begin{array}{c}
\circ \circ \circ \circ \circ \\
0 \ 0 \ 0 \ 0 \\
\end{array} & \begin{array}{c}
\circ \\
0 \\
\end{array} & \begin{array}{c}
\circ \circ \circ \\
0 \ 0 \\
\end{array}
\end{array}
\]

\[
\begin{array}{c}
4 \ \ 2 \ \ 4 \\
\times \ \ 3 \\
\hline
\end{array}
\]

\[
\begin{array}{c}
12 \\
60 \\
+1200 \\
\hline
1272
\end{array}
\]

c. $4 \times 1,424$

\[
\begin{array}{c|c|c|c}
\text{thousands} & \text{hundreds} & \text{tens} & \text{ones} \\
\hline
1000 & 100 & 10 & 4
\end{array}
\]

\[
\begin{array}{c}
1424 \\
\times \ \ 4 \\
\hline
\end{array}
\]

\[
\begin{array}{c}
16 \\
60 \\
1600 \\
+4000 \\
\hline
5696
\end{array}
\]

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2. Represent the following expressions with disks, using either method shown in class, regrouping as necessary. To the right, record the partial products vertically.

   a. \(2 \times 617\)

   \[
   \begin{array}{c}
   \text{617} \\
   \times 2 \\
   \hline
   \text{14} \\
   \text{20} \\
   \hline
   \text{1234}
   \end{array}
   \]

   b. \(5 \times 642\)

   \[
   \begin{array}{c}
   \text{642} \\
   \times 5 \\
   \hline
   \text{10} \\
   \text{200} \\
   \hline
   \text{1234}
   \end{array}
   \]

   c. \(3 \times 3034\)

3. Every day, Penelope jogs three laps around the playground to keep in shape. The playground is rectangular with a width of 163 m and a length of 320 m.

   a. Find the total amount of meters in one lap.

   \[
   \begin{array}{c}
   \text{163} \\
   320 \\
   \hline
   \text{P = 966 m}
   \end{array}
   \]

   b. Determine how many meters Penelope jogs in three laps.

   \[
   \begin{array}{c}
   \text{966} \\
   \times 3 \\
   \hline
   \text{18} \\
   \text{180} \\
   \hline
   \text{2898}
   \end{array}
   \]
1. Solve using each method.

<table>
<thead>
<tr>
<th>Partial Products</th>
<th>Standard Algorithm</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. $4 \times 6$</td>
<td>$4 \times 6$</td>
</tr>
<tr>
<td>$\times 2$</td>
<td>$\times 2$</td>
</tr>
<tr>
<td>$12$</td>
<td>$92$</td>
</tr>
<tr>
<td>+ $80$</td>
<td></td>
</tr>
<tr>
<td>$92$</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partial Products</th>
<th>Standard Algorithm</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. $3 \times 5$</td>
<td>$3 \times 5$</td>
</tr>
<tr>
<td>$\times 4$</td>
<td>$\times 4$</td>
</tr>
<tr>
<td>$20$</td>
<td>$1200$</td>
</tr>
<tr>
<td>+ $1200$</td>
<td></td>
</tr>
<tr>
<td>$1260$</td>
<td></td>
</tr>
</tbody>
</table>

2. Solve using the standard algorithm.

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 \times 3$</td>
<td>$2 \times 6$</td>
<td>$3 \times 7$</td>
<td>$4 \times 3$</td>
<td>$5 \times 8$</td>
<td>$7 \times 9$</td>
</tr>
<tr>
<td>$2 \times 4$</td>
<td>$1 \times 6$</td>
<td></td>
<td>$4 \times 3$</td>
<td>$5 \times 8$</td>
<td></td>
</tr>
<tr>
<td>$3 \times 3$</td>
<td>$2 \times 4$</td>
<td></td>
<td>$1320$</td>
<td>$4056$</td>
<td>$3456$</td>
</tr>
<tr>
<td>$928$</td>
<td>$852$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. What is the product of 8 and 54?
4. Isabel earned 350 points while she was playing Blasting Robot. Isabel’s mom earned 3 times as many points as Isabel. How many points did Isabel’s mom earn?

\[
\begin{array}{c}
350 \\
\times 3 \\
\hline
1050 \text{ points}
\end{array}
\]

5. To get enough money to go on a field trip, every student in a club has to raise $53 by selling chocolate bars. There are 9 students in the club. How much money does the club need to raise to go on the field trip?

\[
\begin{array}{c}
53 \\
\times 9 \\
\hline
477
\end{array}
\]

6. Mr. Meyers wants to order 4 tablets for his classroom. Each tablet costs $329. How much will all four tablets cost?

\[
\begin{array}{c}
329 \\
\times 4 \\
\hline
1316
\end{array}
\]

7. Amaya read 64 pages last week. Amaya’s older brother, Rogelio, read twice as many pages in the same amount of time. Their big sister, Elianna, is in high school and read 4 times as many pages as Rogelio did. How many pages did Elianna read last week?

Amaya's brother's reading:

\[
\begin{array}{c}
64 \\
\times 2 \\
\hline
128
\end{array}
\]

Rogelio's reading:

\[
\begin{array}{c}
128 \\
\times 4 \\
\hline
512
\end{array}
\]

Amaya's sister's reading:

\[
\begin{array}{c}
64 \\
\times 8 \\
\hline
512
\end{array}
\]
1. Solve using the standard algorithm.

<table>
<thead>
<tr>
<th>a. (3 \times 41)</th>
<th>b. (9 \times 41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3 \times 41) = 123</td>
<td>(9 \times 41) = 369</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c. (7 \times 143)</th>
<th>d. (7 \times 286)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(7 \times 143) = 1001</td>
<td>(7 \times 286) = 2002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>e. (4 \times 2,048)</th>
<th>f. (4 \times 4,096)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4 \times 2,048) = 8192</td>
<td>(4 \times 4,096) = 16384</td>
</tr>
</tbody>
</table>

**Notice how these answers are related!**

<table>
<thead>
<tr>
<th>g. (8 \times 4,096)</th>
<th>h. (4 \times 8,192)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(8 \times 4,096) = 32768</td>
<td>(4 \times 8,192) = 32768</td>
</tr>
</tbody>
</table>
2. Robert's family brings six gallons of water for the players on the football team. If one gallon of water contains 128 fluid ounces, how many fluid ounces are in six gallons?

\[ 128 \times 6 = 768 \text{ ounces} \]

3. It takes 687 Earth days for the planet Mars to revolve around the Sun once. How many Earth days does it take Mars to revolve around the Sun four times?

\[ 687 \times 4 = 2748 \text{ days} \]

4. Tammy buys a 4-gigabyte memory card for her camera. Dijonea buys a memory card with twice as much storage as Tammy's. One gigabyte is 1,024 megabytes. How many megabytes of storage does Dijonea have on her memory card?

\[ 4 \times 2 = 8 \]

\[ \frac{13}{1024} \times 8 \]

\[ 8192 \text{ megabytes} \]
1. Solve the following expressions using the standard algorithm, the partial products method, and the area model.

**a.** \(302 \times 8\)

<table>
<thead>
<tr>
<th>PP: (302)</th>
<th>S: (302)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\times 8)</td>
<td>(\times 8)</td>
<td>(8)</td>
</tr>
<tr>
<td>(16)</td>
<td>(2400)</td>
<td>(16)</td>
</tr>
<tr>
<td>(+2400)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2416)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(300\) + \(2\)

\((8 \times 300) + (8 \times 2)\)

**b.** \(216 \times 5\)

<table>
<thead>
<tr>
<th>PP: (216)</th>
<th>S: (216)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\times 5)</td>
<td>(\times 5)</td>
<td>(5)</td>
</tr>
<tr>
<td>(30)</td>
<td>(1000)</td>
<td>(30)</td>
</tr>
<tr>
<td>(50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1080)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(200\) + \(10\) + \(6\)

\((5 \times 200) + (5 \times 10) + (5 \times 6)\)

**c.** \(593 \times 9\)

<table>
<thead>
<tr>
<th>PP: (593)</th>
<th>S: (593)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\times 9)</td>
<td>(\times 9)</td>
<td>(9)</td>
</tr>
<tr>
<td>(27)</td>
<td>(4500)</td>
<td>(27)</td>
</tr>
<tr>
<td>(810)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5337)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(500\) + \(90\) + \(3\)

\((9 \times 500) + (9 \times 90) + (9 \times 3)\)
2. Solve using the partial products method.

On Monday, 475 people visited the museum. On Saturday, there were 4 times as many visitors as there were on Monday. How many people visited the museum on Saturday?

\[
\begin{array}{c}
475 \\
\times 4 \\
\hline
950 \\
+ 1900 \\
\hline
1300 \\
\end{array}
\]

3. Model with a tape diagram and solve.

6 times as much as 384

\[
\begin{array}{c}
384 \\
\hline
2304 \\
\end{array}
\]

4. \(6253 \times 3\)

5. 7 times as many as 3073

6. A cafeteria makes 2,516 pounds of white rice and 608 pounds of brown rice every month. After 6 months, how many pounds of rice does the cafeteria make?

\[\text{18744 pounds}\]