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**GRADE 3 • MODULE 3**
Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10

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---

**ANSWER KEY**

1. Complete the charts below.

   **a. A tricycle has 3 wheels.**
<table>
<thead>
<tr>
<th>Number of tricycles</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of wheels</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td>21</td>
</tr>
</tbody>
</table>

   **b. A tiger has 4 legs.**
<table>
<thead>
<tr>
<th>Number of tigers</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of legs</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>36</td>
</tr>
</tbody>
</table>

   **c. A pack has 5 erasers.**
<table>
<thead>
<tr>
<th>Number of packs</th>
<th>5</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of erasers</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
</tr>
</tbody>
</table>

2. Write two multiplication facts for each array.

   - $24 \times 4 = 96$
   - $24 \div 4 = 6$
   - $24 \times 3 = 72$
   - $24 \div 3 = 8$
   - $24 \times 6 = 144$
   - $24 \div 6 = 4$
3. Match the expressions.

- 3 sevens
- 2 eights
- 9 sixes
- 8 twos
- 6 threes
- 7 threes
- 5 threes
- 2 tens

4. Complete the equations.
   a. 2 nines = 18 twos
      = 12
   b. 3 sevens = 6 threes
      = 18
   c. 3 sixes = 18
      = 18
   d. 4 nines = 7 twos
      = 28
   e. 5 twos + 2 twos = 7 nines
      = 14
   f. 5 threes + 1 five = 6 nines
      = 30

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1. Each has a value of 9.
   Unit form: 5 nines
   \[ \text{Facts: } 5 \times 9 = 9 \times 5 \]
   \[ \text{Total } 45 \]

   Unit form: 6 nines
   \[ \text{Facts: } 6 \times 9 = 54 \]
   \[ \frac{54}{9} = 6 \]
2. There are 6 blades on each windmill. How many total blades are on 7 windmills? Use a fives fact to solve.

\[7 \text{ sixes} = 5 \text{ sixes} + 2 \text{ sixes} = 30 + 12 = 42\]

There are 42 blades on 7 windmills.

3. Juanita organizes her magazines into 3 equal piles. She has a total of 18 magazines. How many magazines are in each pile?

\[3 \times \frac{18}{6} = 18 \]

\[18 \div 3 = 6\]

There are 6 magazines in each pile.

4. Markuo spends $27 on some plants. Each plant costs $9. How many plants does he buy?

\[9 \times 3 = 27\]

\[27 \div 9 = 3\]

Markuo buys 3 plants.
3. Pedro buys 4 books at the fair for $7 each.
   a. What is the total amount Pedro spends on 4 books? Use the letter $b$ to represent the total amount Pedro spends, and then solve the problem.

   $4 \times 7 = b$
   
   $b = 28$

   Pedro spends $28 on books.

   b. Pedro hands the cashier 3 ten dollar bills. How much change will he receive? Write an equation to solve. Use the letter $c$ to represent the unknown.

   $\$30 - \$28 = c$

   $c = \$2$

   Pedro will get $\$2 in change.

4. On field day, the first grade dash is 25 meters long. The third grade dash is twice the distance of the first grade dash. How long is the third grade dash? Use a letter to represent the unknown and solve.

   1st dash: $25$

   $25 \times 2 = d$

   $d = 50$ meters

   The 3rd grade dash is 50 meters.

1. Use number bonds to help you skip-count by six by either making a ten or adding to the ones.

   a. $6 + 2 = 12$

   b. $10 + 8 = 18$

   c. $18 + 6 = 24$

   d. $20 + 10 = 30$

   e. $30 + 6 = 36$

   f. $36 + 2 = 38$

   g. $40 + 8 = 48$

   h. $50 + 4 = 54$

   i. $50 + 10 = 60$
2. Count by six to fill in the blanks below.

\[ 6, 12, 18, 24, 30, 36 \]

Complete the multiplication equation that represents the final number in your count-by.

\[ 6 \times 5 = 30 \]

Complete the division equation that represents your count-by.

\[ 36 \div 6 = 6 \]

3. Count by six to fill in the blanks below.

\[ 6, 12, 18, 24, 30, 36 \]

Complete the multiplication equation that represents the final number in your count-by.

\[ 6 \times 6 = 36 \]

Complete the division equation that represents your count-by.

\[ 36 \div 6 = 6 \]

4. Count by 6 to solve 48 \div 6. Show your work below.

\[ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48 \]

Since \( 6 \times 8 = 48 \), we know \( 48 \div 6 = 8 \).

1. Use number bonds to help you skip-count by seven by making ten or adding to the ones.

\[ \begin{align*}
(a) 7 + 7 &= \boxed{10} + \boxed{4} = 14 \\
(b) 14 + 7 &= \boxed{10} + \boxed{1} = 21 \\
(c) 21 + 7 &= \boxed{20} + \boxed{8} = 28 \\
(d) 28 + 7 &= \boxed{30} + \boxed{5} = 35 \\
(e) 35 + 7 &= \boxed{40} + \boxed{2} = 42 \\
(f) 42 + 7 &= \boxed{40} + \boxed{9} = 49 \\
(g) 49 + 7 &= \boxed{50} + \boxed{6} = 56 \\
(h) 56 + 7 &= \boxed{60} + \boxed{3} = 63
\end{align*} \]
2. Skip-count by seven to fill in the blanks. Then use the multiplication equation to write the related fact directly to the right.

\[
\begin{align*}
70 & \quad 70 = 10 \\
63 & \quad 63 + 7 = 9 \\
56 & \quad 56 + 7 = 8 \\
49 & \quad 49 + 7 = 7 \\
42 & \quad 42 + 7 = 6 \\
35 & \quad 35 + 7 = 5 \\
28 & \quad 28 + 7 = 4 \\
21 & \quad 21 + 7 = 3 \\
14 & \quad 14 + 7 = 2 \\
7 & \quad 7 + 7 = 1
\end{align*}
\]
2. Break apart 54 to solve 54 \div 6.

\[
\begin{align*}
54 \div 6 &= (30 \div 6) + (24 \div 6) \\
&= 5 + 4 \\
&= 9
\end{align*}
\]

3. Break apart 56 to solve 56 \div 7.

\[
\begin{align*}
56 \div 7 &= (35 \div 7) + (21 \div 7) \\
&= 5 + 3 \\
&= 8
\end{align*}
\]

4. Forty-two third grade students sit in 6 equal rows in the auditorium. How many students sit in each row?

Show your thinking.

\[
42 \div 6 = \boxed{7}
\]

There are 7 students in each row.

5. Ronaldo solves 7 \times 6 by thinking of it as (5 \times 7) + 7. Is he correct? Explain Ronaldo’s strategy.

Ronaldo is correct.

\[
7 \times 6 \text{ can be thought of as 6 sevens.}
\]

\[
6 \text{ sevens} = 5 \text{ sevens} + 1 \text{ seven} = 5 \times 7 + 7
\]
2. Ari sells 6 boxes of pens at the school store.
   a. Each box of pens sells for $7. Draw a tape diagram and label the total amount of money he makes as $m$. Write an equation and solve for $m$.

   \[ 6 \times 7 = m \]
   \[ m = 42 \]

   Ari makes $42.

   b. Each box contains 6 pens. Draw a tape diagram and label the total number of pens as $p$. Write an equation and solve for $p$.

   \[ 6 \times 6 = p \]
   \[ p = 36 \]

   Ari sells 36 pens.

3. Mr. Lucas divides 28 students into 7 equal groups for a project. Draw a tape diagram and label the number of students in each group as $n$. Write an equation and solve for $n$.

   \[ 28 \div 7 = n \]
   \[ n = 4 \]

   There are 4 students in each group.

Name __________________________ Date ____________

1. Solve.
   a. \[ 9 - (6 + 3) = 0 \]
   b. \[ \frac{5}{3} + 3 = \frac{6}{6} \]
   c. \[ \frac{8}{3} = 14 - (4 + 2) \]
   d. \[ 2 = \frac{(14 - 4) + 2}{10} \]
   e. \[ \frac{14}{7} = (4 + 3) \times 6 \]
   f. \[ \frac{22}{10} = 4 + (3 \times 6) \]
   g. \[ 18 + (3 + 6) = \frac{12}{6} \]
   h. \[ 18 + (3 + 6) = \frac{2}{2} \]

2. Use parentheses to make the equations true.

   a. \[ 14 - (6 + 2) = 4 \]
   b. \[ 14 - (8 + 2) = 8 \]
   c. \[ 2 + (4 \times 7) = 30 \]
   d. \[ (2 + 4) \times 7 = 42 \]
   e. \[ 12 = (18 + 3) \times 2 \]
   f. \[ 3 = 18 \times (3 + 2) \]
   g. \[ 50 = 50 + (5 \times 2) \]
   h. \[ 20 = 50 + (5 \times 2) \]
3. Determine if the equation is true or false.

<table>
<thead>
<tr>
<th></th>
<th>Example: True</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ((15 - 3) \div 2 = 6)</td>
<td>True</td>
</tr>
<tr>
<td>b. ((10 - 7) \times 6 = 18)</td>
<td>False</td>
</tr>
<tr>
<td>c. ((35 - 7) \div 4 = 8)</td>
<td>True</td>
</tr>
<tr>
<td>d. (28 \div (20 - 13))</td>
<td>True</td>
</tr>
<tr>
<td>e. (35 \div (22 - 8) = 5)</td>
<td>False</td>
</tr>
</tbody>
</table>

4. Jerome finds that \((3 \times 6) \div 2\) and \(18 \div 2\) are equal. Explain why this is true.

\[
\begin{align*}
(3 \times 6) \div 2 &= 18 \div 2 \\
= 18 &\div 2 \\
= 9 &
\end{align*}
\]

It is true because \(3\times 6\) and 18 are equal. Both expressions have “divide by 2”.

5. Place parentheses in the equation below so that you solve by finding the difference between 20 and 3.

Find the answer.

\[
\begin{align*}
(4 \times 7) - 3 &= 28 - 3 \\
= 25 &
\end{align*}
\]

6. Johnny says that the answer to \(2 \times 6 \div 3\) is 4 no matter where the parentheses are. Do you agree? Place parentheses around different numbers to show his thinking.

There are two options for placing the parentheses on this expression and both have 4 as the answer.

\[
\begin{align*}
(2 \times 6) \div 3 &= 12 \div 3 = 2 \times 2 = 4 \\
(2 \times (6 \div 3)) &= 2 \times 2 = 4 \\
\end{align*}
\]
2. Place ( ) in the equations to simplify and solve.

\[
\begin{align*}
12 \times 4 &= (6 \times 2) \times 4 \\
-6 \times (2 \times 4) &= 6 \times 8 \\
3 \times 14 &= 3 \times (2 \times 7) \\
-3 \times 2 &= 7 \\
6 \times 7 &= 48 \\
3 \times 12 &= 3 \times (8 \times 4) \\
4 \times 3 &= 4 \\
9 \times 4 &= 36
\end{align*}
\]

3. Solve. Then match the related facts.

a. \(20 \times 2 = 40 = 6 = (5 \times 2)\)

b. \(30 \times 2 = 60 = 8 \times (5 \times 2)\)

c. \(35 \times 2 = 70 = 4 \times (5 \times 2)\)

d. \(40 \times 2 = 80 = 7 \times (5 \times 2)\)

1. Label the array. Then fill in the blanks to make the statements true.

\[
\begin{align*}
a) \ 8 \times 7 &= 7 \times 8 = 56 \\
(7 \times 5) - 35 &= (7 \times 3) - 21 \\
8 \times 7 &= 7 \times (5 + 3) = (7 \times 5) + (7 \times 3) = 56 + 21
\end{align*}
\]

2. Break apart and distribute to solve.

\(72 \div 8\)

\[
\begin{align*}
72 + 8 &= (40 + 8) + \boxed{32} + 8 \\
5 + \boxed{4} &= 9
\end{align*}
\]
3. Count by 8. Then match each multiplication problem with its value.

\[ \begin{align*}
16 & \quad 24 & \quad 32 & \quad 40 & \quad 48 & \quad 56 & \quad 64 & \quad 72 & \quad 80 \\
\end{align*} \]

\[ \begin{align*}
8 \times 9 & \quad 8 \times 5 & \quad 8 \times 8 & \\
8 \times 6 & \quad 8 \times 7 & \\
\end{align*} \]

4. Divide.

\[ \begin{align*}
16 \div 8 & = 2 \\
40 \div 8 & = 5 \\
32 \div 8 & = 4 \\
48 \div 8 & = 6 \\
56 \div 8 & = 7 \\
72 \div 8 & = 9 \\
\end{align*} \]

Name ___________________________ Date __________________

1. Jenny bakes 10 cookies. She puts 7 chocolate chips on each cookie. Draw a tape diagram and label the total amount of chocolate chips as \( c \). Write an equation and solve for \( c \).

\[ 10 \times 7 = c \]
\[ c = 70 \text{ chocolate chips} \]

Jenny will use 70 chocolate chips.

2. Mr. Lopez arranges 48 dry erase markers into 8 equal groups for his math stations. Draw a tape diagram and label the number of dry erase markers in each group as \( v \). Write an equation and solve for \( v \).

\[ 48 \div 8 = v \]
\[ v = 6 \]

There will be 6 dry erase markers in each group.

3. There are 35 computers in the lab. Five students each turn off an equal number of computers. How many computers does each student turn off? Label the unknown as \( m \), then solve.

\[ 35 \div 5 = m \]
\[ m = 7 \]

Each student turns off 7 computers.
4. There are 9 bins of books. Each bin has 6 comic books. How many comic books are there altogether?

\[
9 \times 6 = c
\]
\[
c = 54
\]
There are 54 comic books altogether.

5. There are 8 trail mix bags in one box. Clarissa buys 5 boxes. She gives an equal number of bags of trail mix to 4 friends. How many bags of trail mix does each friend receive?

\[
5 \times 8 = t
\]
\[
t = 40
\]
Each friend receives 10 bags of trail mix.

6. Leo earns $8 a week for doing chores. After 7 weeks, he buys a gift and has $38 left. How much does he spend on the gift?

Before

After

\[
7 \times 8 = t
\]
\[
t = 56
\]
Leo earned $56 in 7 weeks.

\[
56 - 38 = 9
\]
Leo spent $18 on the gift.
Lesson 12 Homework

2. Match.
   
   a. 9 fives = 10 fives - 1 five
      \[ = 50 - 5 \]
      \[ = 45 \]
   
   b. 9 sixes = 10 sixes - 1 six
      \[ = 60 - 6 \]
      \[ = 54 \]
   
   c. 9 sevens = 10 sevens - 1 seven
      \[ = 70 - 7 \]
      \[ = 63 \]
   
   d. 9 eights = 10 eights - 1 eight
      \[ = 80 - 8 \]
      \[ = 72 \]
   
   e. 9 nines = 10 nines - 1 nine
      \[ = 90 - 9 \]
      \[ = 81 \]
   
   f. 9 fours = 10 fours - 1 four
      \[ = 40 - 4 \]
      \[ = 36 \]

Lesson 13 Homework

Name ___________________________ Date ___________________________

1. a. Skip-count by nines down from 90.
   \[ 90 \quad 81 \quad 72 \quad 63 \quad 54 \quad 45 \quad 36 \quad 27 \quad 18 \quad 9 \]
   
   b. Look at the tens place in the count-by. What is the pattern?
   The digit in the tens place goes down by one each time.
   
   c. Look at the ones place in the count-by. What is the pattern?
   The digit in the ones place goes up by one each time.

2. Each number sentence contains a letter representing the unknown. Find the value of each unknown.

   \[ \begin{array}{ccc}
   a \times 3 = 18 & m + 9 = 27 & e \times 3 = 45 \\
   a = 2 & m = 18 & e = 15 \\
   \end{array} \]

   \[ \begin{array}{ccc}
   f + 9 = 4 & 9 = 90 & k + 9 = 8 \\
   f = 31 & s = 10 & k = 72 \\
   \end{array} \]

3.0.14

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3. Solve.
   a. What is 10 more than \( \frac{10}{9} \)?
      \[ \frac{10}{9} + 10 = \frac{19}{9} \]
      What is 1 less?
      \[ \frac{10}{9} - 1 = \frac{7}{9} \]
      \[ 1 \times 9 = 9 \]
      \[ 2 \times 9 = 18 \]

   b. What is 10 more than \( \frac{19}{8} \)?
      What is 1 less?
      \[ \frac{19}{8} + 10 = \frac{28}{8} \]
      \[ \frac{28}{8} + 1 = \frac{27}{8} \]
      \[ 3 \times 9 = 27 \]

   c. What is 10 more than \( \frac{28}{27} \)?
      What is 1 less?
      \[ \frac{28}{27} + 10 = \frac{58}{27} \]
      \[ \frac{58}{27} + 1 = \frac{59}{27} \]
      \[ 3 \times 9 = 27 \]

   d. 10 more than \( \frac{27}{36} \)
      What is 1 less?
      \[ \frac{27}{36} + 10 = \frac{37}{36} \]
      \[ \frac{37}{36} + 1 = \frac{38}{36} \]
      \[ 4 \times 9 = 36 \]

   e. What is 10 more than \( \frac{36}{44} \)?
      What is 1 less?
      \[ \frac{36}{44} + 10 = \frac{72}{44} \]
      \[ \frac{72}{44} + 1 = \frac{73}{44} \]
      \[ 5 \times 9 = 45 \]

   f. What is 10 more than \( \frac{45}{55} \)?
      What is 1 less?
      \[ \frac{45}{55} + 10 = \frac{90}{55} \]
      \[ \frac{90}{55} + 1 = \frac{91}{55} \]
      \[ 6 \times 9 = 54 \]

   g. What is 10 more than \( \frac{54}{65} \)?
      What is 1 less?
      \[ \frac{54}{65} + 10 = \frac{119}{65} \]
      \[ \frac{119}{65} + 1 = \frac{120}{65} \]
      \[ 7 \times 9 = 63 \]

   h. What is 10 more than \( \frac{65}{63} \)?
      What is 1 less?
      \[ \frac{65}{63} + 10 = \frac{130}{63} \]
      \[ \frac{130}{63} + 1 = \frac{131}{63} \]
      \[ 8 \times 9 = 72 \]

   i. What is 10 more than \( \frac{72}{81} \)?
      What is 1 less?
      \[ \frac{72}{81} + 10 = \frac{144}{81} \]
      \[ \frac{144}{81} + 1 = \frac{145}{81} \]
      \[ 9 \times 9 = 81 \]

   j. What is 10 more than \( \frac{81}{92} \)?
      What is 1 less?
      \[ \frac{81}{92} + 10 = \frac{101}{92} \]
      \[ \frac{101}{92} + 1 = \frac{102}{92} \]
      \[ 10 \times 9 = 90 \]

4. Explain the pattern in Problem 2 and use the pattern to find the next 3 facts.
   \[ 11 \times 9 = 99 \]
   \[ 12 \times 9 = 108 \]
   \[ 13 \times 9 = 117 \]

   \[ 10 \times 9 = 90 \]

What pattern did you notice in the table? How can this strategy help you check your work with nines facts?

For each product in the 9 times tables, the sum of the digits in the product is always 9.
2. Thomas calculates $9 \times 7$ by thinking about it as $70 - 7 = 63$. Explain Thomas’ strategy.

$$10 \text{ sevens is 70, but Thomas want 9 sevens so he needs to subtract 7 from 70 to get}$$
$$9 \times 7 = 63.$$ 

3. Alexa figures out the answer to $6 \times 9$ by lowering the thumb on her right hand, shown below. What is the answer? Explain Alexa’s strategy.

There are 5 fingers still standing to the left of the lowered finger. Think “50”.
There are 4 fingers still standing to the right of the lowered finger. Think “4”.

$$50 + 4 = 54$$

4. Travis writes $72 - 9 \times 8$. Is he correct? Explain at least 2 strategies Travis can use to help him check his work.

$$9 \times 8 = 10 \times 8 - 8$$
$$= 80 - 8$$
$$= 72$$

$$9 \times 8 = (5+4) \times 8$$
$$= (5 \times 8) + (4 \times 8)$$
$$= 40 + 32$$
$$= 72$$

Name ____________________ Date ________________

1. The store clerk equally divides 36 apples between 9 baskets. Draw a tape diagram and label the number of apples in each basket as $a$. Write an equation and solve for $a$.

$$36 \div 9 = a$$
$$a = 4$$

There are 4 apples in each basket.

2. Elijah gives each of his friends a pack of 9 almonds. He gives away a total of 45 almonds. How many packs of almonds did he give away? Model using a letter to represent the unknown, then solve.

$$45 \div 9 = f$$
$$f = 5$$

Elijah gave away packs of almonds to 5 friends.


$$7 \times 9 = m$$
$$m = \$63$$

Denice spent $63 on the movies.
4. Mr. Doyle shares 1 roll of bulletin board paper equally with 8 teachers. The total length of the roll is 72 meters. How much bulletin board paper does each teacher get?

\[
72 \div 8 = p \\
p = 9
\]

Each teacher gets 9 meters of bulletin board paper.

5. There are 9 pens in a pack. Ms. Ochoa buys 5 packs. After giving her students some pens, she has 27 pens left. How many pens did she give away?

\[
9 \times 9 = p \\
p = 81
\]

There are 81 pens total.

\[
81 - 27 = m \\
m = 54
\]

She gave away 54 pens.

6. Allen buys 5 packs of trading cards. There are 10 cards in each pack. He can trade 30 cards for a comic book. How many comic books can he get if he trades all of his cards?

\[
9 \times 10 = c \\
c = 90
\]

There are 90 cards.

\[
90 \div 30 = 3
\]

He can get 3 books.
3. Let \( c = 8 \). Then determine whether the equations are true or false.

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<table>
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<tbody>
<tr>
<td>a. ( c + 0 = 8 )</td>
<td>Example: False.</td>
</tr>
<tr>
<td>b. ( 0 \times c = 0 )</td>
<td>True</td>
</tr>
<tr>
<td>c. ( c \times 1 = 8 )</td>
<td>True</td>
</tr>
<tr>
<td>d. ( 1 \times c = 8 )</td>
<td>True</td>
</tr>
<tr>
<td>e. ( 0 \div c = 8 )</td>
<td>False</td>
</tr>
<tr>
<td>f. ( 8 \div c = 1 )</td>
<td>True</td>
</tr>
<tr>
<td>g. ( 0 + c = 0 )</td>
<td>False</td>
</tr>
</tbody>
</table>

4. Rajan says that any number multiplied by 1 equals that number.

a. Write a multiplication equation using \( n \) to represent Rajan’s statement.
   \[ n \times 1 = n \]

b. Using your equation from Part (a), let \( n = 5 \) and draw a picture to show that the new equation is true.
   \[ 5 \times 1 = 5 \]

1. Write the products as fast as you can into the chart.

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<td>32</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>42</td>
<td>48</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>49</td>
<td>56</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>32</td>
<td>40</td>
<td>48</td>
<td>56</td>
<td>64</td>
</tr>
</tbody>
</table>

a. Color the rows and columns with even factors yellow.

b. What do you notice about the factors and products that are left unshaded?

The unshaded factors and products are all odd numbers.

c. Complete the chart below by filling in each blank and writing an example for each rule.

<table>
<thead>
<tr>
<th>Rule</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>odd times odd equals</td>
<td>odd</td>
</tr>
<tr>
<td>even times even equals</td>
<td>even</td>
</tr>
<tr>
<td>even times odd equals</td>
<td>even</td>
</tr>
</tbody>
</table>

\[ 3 \times 5 = 15 \quad 7 \times 7 = 49 \]

\[ 4 \times 8 = 32 \quad 2 \times 8 = 16 \]

\[ 6 \times 3 = 18 \quad 2 \times 7 = 14 \]
9 = 3 \times 3

11 = 4 \times 4

36 = 6 \times 6

64 = 8 \times 8

100 = 10 \times 10

The total weight of her cat and dog is 34 kg.

Darren spent 57 minutes studying and doing chores.

Mr. Abbot bought 72 granola bars.

33 bars were eaten at the party.
4. Leslie weights her marbles in a jar, and the scale reads 474 grams. The empty jar weighs 439 grams. Each marble weighs 5 grams. How many marbles are in the jar?

The marbles weigh 35 grams.

\[
\begin{align*}
474 & \quad \text{The marbles weigh 35 grams.} \\
-439 & \quad \text{There are 7 marbles in the jar.} \\
\cline{1-2}
35 & \quad \text{35 \div 5 = m} \\
7 & \quad m
\end{align*}
\]

5. Sharon uses 72 centimeters of ribbon to wrap gifts. Of that total, she uses 24 centimeters to wrap a big gift. She uses the remaining ribbon for 5 small gifts. How much ribbon will she use for each small gift if she uses the same amount on each?

\[
\begin{align*}
72 \quad & \quad 48 \quad \text{cm for the six small gifts.} \\
-48 & \quad 48 \quad \text{cm} \\
\cline{1-2}
24 & \quad 48 \quad \text{cm} \\
\end{align*}
\]

\[
\begin{align*}
48 \div 6 = 8 & \\
8 \quad \text{cm of ribbon for each small gift.}
\end{align*}
\]

6. Six friends equally share the cost of a gift. They pay $90 and receive $42 in change. How much does each friend pay?

\[
\begin{align*}
90 \quad & \quad \text{They paid $132 in total.} \\
+42 & \quad \text{Each friend paid $22.} \\
\cline{1-2}
132 & \quad \text{132 \div 6 = 22}
\end{align*}
\]

Name ___________________________ Date ____________

1. Use the disks to complete true number sentences.

- 6 \div 3 = 2
- 3 \times 3 = \boxed{9}

2. Use the chart to complete true number sentences.

\[
\begin{array}{c|c}
\text{tens} & \text{ones} \\
\hline
5 & \boxed{5} \\
4 & \boxed{0}
\end{array}
\]

\[
\begin{array}{c|c}
\text{tens} & \text{ones} \\
\hline
2 & \boxed{5} \\
2 & \boxed{0}
\end{array}
\]

\[
\begin{array}{c|c}
\text{tens} & \text{ones} \\
\hline
2 & \boxed{5} \\
2 & \boxed{0}
\end{array}
\]

\[
\begin{array}{c|c}
\text{tens} & \text{ones} \\
\hline
2 & \boxed{5} \\
2 & \boxed{0}
\end{array}
\]
3. Match.

<table>
<thead>
<tr>
<th>6 × 2</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 tens × 2</td>
<td>21</td>
</tr>
<tr>
<td>7 × 3</td>
<td>12</td>
</tr>
<tr>
<td>7 tens × 3</td>
<td>270</td>
</tr>
<tr>
<td>70 × 5</td>
<td>210</td>
</tr>
<tr>
<td>3 × 90</td>
<td>350</td>
</tr>
</tbody>
</table>

4. Each classroom has 30 desks. Use a tape diagram to find the total number of desks in 8 classrooms.

8 × 30 = d

\[ d = 240 \]

There are 240 desks altogether.
2. Solve. Place ( ) in ( ) and ( ) as needed to find the related fact.
   a. \( 3 \times 20 = 3 \times (2 \times 10) \)
      \[ = (3 \times 2) \times 10 \]
      \[ = 6 \times 10 \]
      \[ = 60 \]
   b. \( 3 \times 30 = 3 \times (3 \times 10) \)
      \[ = (3 \times 3) \times 10 \]
      \[ = 9 \times 10 \]
      \[ = 90 \]
   c. \( 3 \times 40 = 3 \times (4 \times 10) \)
      \[ = (3 \times 4) \times 10 \]
      \[ = 12 \times 10 \]
      \[ = 120 \]
   d. \( 3 \times 50 = 3 \times (5 \times 10) \)
      \[ = (3 \times 5) \times 10 \]
      \[ = 15 \times 10 \]
      \[ = 150 \]

3. Danny solves \( 5 \times 20 \) by thinking about \( 10 \times 10 \). Explain his strategy.

\[ 5 \times 20 = 5 \times 2 \times 10 \]
\[ = (5 \times 2) \times 10 \]
\[ = 10 \times 10 \]

After factoring 20 to 2\( \times 10 \), parentheses can be added to show that \( 5 \times 20 = 10 \times 10 \).
4. Mr. Ramirez receives 4 sets of books. Each set has 16 fiction books and 14 non-fiction books. He puts 97 books in his library and donates the rest of his books. How many books does he donate?

\[4 \times 30 = b\]
\[b = 120\]

He donates 23 books.

5. Celia sells calendars for a fundraiser. Each calendar costs $9. She sells 16 calendars to her family members and 14 calendars to the people in her neighborhood. Her goal is to earn $300. Does Celia reach her goal? Explain your answer.

\[30 \times 9 = 270\]
\[\frac{300}{30} = 10\]

Celia earned $270.

Celia missed her goal by $30.

6. The video store sells science and history movies for $5 each. How much money does the video store make if it sells 33 science movies and 57 history movies?

\[90 \times 5 = 450\]

The video store earned $450.