Chapter 6

Multiplication Tables of 6, 7, 8, and 9

Practice 1  Multiplication Properties

Look at each number line. Write the multiplication fact.

1.

\[ \underline{\phantom{0}} \times \underline{\phantom{0}} = \underline{\phantom{0}} \]

2.

\[ \underline{\phantom{0}} \times \underline{\phantom{0}} = \underline{\phantom{0}} \]

3.

\[ \underline{\phantom{0}} \times \underline{\phantom{0}} = \underline{\phantom{0}} \]
Complete each multiplication fact. Then show on each number line.

4. \(4 \times 5 = \) ________

[Number line: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22]

5. \(5 \times 3 = \) ________

[Number line: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20]

Look at the dot paper. Write the multiplication fact.

Example

\[
\begin{array}{ccccc}
1 & 2 & 3 & 4 & 5 \\
1 & & & & \\
2 & & & & \\
\end{array}
\quad \quad
\begin{array}{cccc}
1 & 2 & & \\
1 & & & \\
2 & & & \\
3 & & & \\
4 & & & \\
5 & & & \\
\end{array}
\]

\[2 \times 5 = 10 \quad 5 \times 2 = 10\]

6. 

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
1 & & & & \\
2 & & & & \\
3 & & & & \\
\end{array}
\quad \quad
\begin{array}{ccc}
1 & 2 & 3 \\
1 & & & \\
2 & & & \\
3 & & & \\
4 & & & \\
\end{array}
\]

\[\text{_____} \times \text{_____} = \text{_____} \quad \text{_____} \times \text{_____} = \text{_____}\]
Name: _______________________________ Date: ____________________

Look at the dot paper. Write the multiplication fact.

7. 

\[ \begin{align*} 
1 \times \underline{\rule{0pt}{2ex}} &= \underline{\rule{0pt}{2ex}} \\
\underline{\rule{0pt}{2ex}} \times \underline{\rule{0pt}{2ex}} &= \underline{\rule{0pt}{2ex}} 
\end{align*} \]

8. 

\[ \begin{align*} 
3 \times \underline{\rule{0pt}{2ex}} &= \underline{\rule{0pt}{2ex}} \times 3 \\
&= \underline{\rule{0pt}{2ex}} 
\end{align*} \]

Complete the multiplication fact. Then show on each number line.

9. 

\[ \begin{align*} 
2 \times 5 &= \underline{\rule{0pt}{2ex}} \\
5 \times 2 &= \underline{\rule{0pt}{2ex}} \\
\text{So, } \underline{\rule{0pt}{2ex}} \times 5 &= 5 \times \underline{\rule{0pt}{2ex}} \\
&= \underline{\rule{0pt}{2ex}} 
\end{align*} \]

Fill in the missing numbers.

10. \(2 \times _____ = 0 \times _____\)  
11. \(0 \times _____ = 4 \times _____\)  
   = _____  
   = _____

12. \(5 \times _____ = 1 \times _____\)  
13. \(1 \times _____ = 10 \times _____\)  
   = _____  
   = _____

Complete each multiplication fact. Then show on the number line.

Example

\[2 \times 3 \times 3 = ?\]

Step 1
\[2 \times 3 = 6\]

Step 2
\[6 \times 3 = 18\]

So, \(2 \times 3 \times 3 = 6 \times 3 = 18\)

14. \(2 \times 4 \times 2 = _____ \times _____\)  
   = _____
Practice 2  Multiply by 6

Look at each array model. Write the multiplication fact.

Example

\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & 6 \\
1 & \circ & \circ & \circ & \circ & \circ \\
2 & \circ & \circ & \circ & \circ & \circ \\
3 & \circ & \circ & \circ & \circ & \circ \\
4 & \circ & \circ & \circ & \circ & \circ \\
4 & \circ & \circ & \circ & \circ & \circ \\
\end{array}
\]

\[4 \times 6 = 24\]

1.  
\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & 6 \\
1 & \circ & \circ & \circ & \circ & \circ \\
2 & \circ & \circ & \circ & \circ & \circ \\
3 & \circ & \circ & \circ & \circ & \circ \\
4 & \circ & \circ & \circ & \circ & \circ \\
5 & \circ & \circ & \circ & \circ & \circ \\
\end{array}
\]

\[\quad \times \quad \quad = \quad \quad\]

2.  
\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & 6 \\
1 & \circ & \circ & \circ & \circ & \circ \\
2 & \circ & \circ & \circ & \circ & \circ \\
3 & \circ & \circ & \circ & \circ & \circ \\
4 & \circ & \circ & \circ & \circ & \circ \\
5 & \circ & \circ & \circ & \circ & \circ \\
6 & \circ & \circ & \circ & \circ & \circ \\
\end{array}
\]

\[\quad \times \quad \quad = \quad \quad\]
Fill in the missing numbers.

3. 8 sixes = 8 × _______

4. 5 × 6 = _______ sixes

5. 7 + 7 + 7 + 7 + 7 + 7 = 6 × _______

6. 6 + 6 + 6 + 6 + 6 + 6 + 6 = 7 × _______

7. 10 × 6 = 6 × _______

8. 3 sixes = 6 + 6 + _______

Multiply. Use multiplication facts you know to find other multiplication facts.

9. 6 × 4 = _______ groups of 4
   = 5 groups of 4 + _______ group of 4
   = _______ + _______
   = _______

10. 5 × 6 = _______
    7 × 6 = _______ groups of 6
        = 5 groups of 6 + _______ groups of 6
        = _______ + _______
        = _______

11. 10 × 6 = _______
    8 × 6 = _______ groups of 6
        = 10 groups of 6 − _______ groups of 6
        = _______ − _______
        = _______
Multiply and match.

12.

9 \times 6
36

8 \times 6
48

10 \times 6
60

7 \times 6
42

6 \times 6
36

5 \times 6
30

4 \times 6
24

3 \times 6
18

2 \times 6
12

Lesson 6.2  Multiply by 6
Solve.

13. James has 8 toy trucks.
   Each toy truck has 6 wheels.
   How many wheels do the toy trucks have in all?

   [Toy trucks image]

   _______ × 6 = _______

   The toy trucks have _______ wheels in all.

14. An insect has 6 legs.
   How many legs do 4 insects have?

   _______ × _________ = _________

   4 insects have _________ legs.

15. A cube has 6 sides.
   How many sides do 9 cubes have in all?

   _______ × 6 = _______

   9 cubes have _________ sides in all.
Practice 3  Multiply by 7

Look at each area model. Write the multiplication fact.

Example

\[ \quad \times \quad = \quad \]

1.

\[ \quad \times \quad = \quad \]

2.

\[ \quad \times \quad = \quad \]
Fill in the missing numbers.

3. 6 sevens = 6 \times \underline{\phantom{000}}

4. 9 \times 7 = \underline{\phantom{000}} \text{ sevens}

5. 5 + 5 + 5 + 5 + 5 + 5 + 5 = 7 \times \underline{\phantom{000}}

6. 7 + 7 + 7 + 7 + 7 = 5 \times \underline{\phantom{000}}

7. 10 \times 7 = 7 \times \underline{\phantom{000}}

8. 4 sevens = 7 + 7 + 7 + \underline{\phantom{000}}

Multiply. Use multiplication facts you know to find other multiplication facts.

9. 7 \times 4 = 5 \text{ groups of 4} + \underline{\phantom{000}} \text{ groups of 4}
   = \underline{\phantom{000}} + \underline{\phantom{000}}
   = \underline{\phantom{000}}

10. 5 \times 7 = \underline{\phantom{000}}
   7 \times 7 = 5 \text{ groups of 7} + \underline{\phantom{000}} \text{ groups of 7}
   = \underline{\phantom{000}} + \underline{\phantom{000}}
   = \underline{\phantom{000}}

11. 10 \times 7 = \underline{\phantom{000}}
   9 \times 7 = 10 \text{ groups of 7} - \underline{\phantom{000}} \text{ group of 7}
   = \underline{\phantom{000}} - \underline{\phantom{000}}
   = \underline{\phantom{000}}
Multiply and match.

12.

- 49 × 2
- 70 × 3
- 21 × 7
- 42 × 4
- 6 × 7
- 3 × 7
- 7 × 7
- 10 × 7
- 5 × 7
- 8 × 7
- 9 × 7
- 14 × 2
- 28 × 4
- 56 × 3
- 35 × 5
- 14 × 2
- 28 × 4
- 63 × 7
Solve.

   How much does Mrs. Thompson pay in all?

   \[2 \times 7 = \$\underline{\phantom{0}}\]
   Mrs. Thompson pays $\underline{\phantom{0}}$ in all.

    Alex packs 10 such boxes into his bag. 
    How many crayons does Alex have in all?

   \[10 \times 7 = \underline{\phantom{00}}\]
   Alex has \underline{\phantom{00}} crayons in all.

15. Mr. Dean gives each student 7 okras in art class. 
    How many okras does he give 4 students?

   \[4 \times 7 = \underline{\phantom{00}}\]
   He gives 4 students \underline{\phantom{00}} okras.
Practice 4  Multiply by 8

Complete the multiplication fact. Then show on the number line.

1. \[3 \times 8 = \underline{\quad}\]

Complete the multiplication fact. Then shade to show on the area model.

2. \[6 \times 8 = \underline{\quad}\]

Fill in the missing numbers.

3. 8 eights \(= 8 \times \underline{\quad}\)

4. 3 eights \(= \underline{\quad} \times 8\)

5. \[6 + 6 + 6 + 6 + 6 + 6 + 6 = 8 \times \underline{\quad}\]
6. \[ 8 + 8 + 8 + 8 + 8 + 8 = 6 \times \underline{\hspace{1cm}} \]

7. \[ 5 \times 8 = 8 \times \underline{\hspace{1cm}} \]

8. 5 eights = \[ 8 + 8 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} \]

**Multiply. Use multiplication facts you know to find other multiplication facts.**

9. \[ 8 \times 4 = 10 \text{ groups of } 4 - \underline{\hspace{1cm}} \text{ groups of } 4 \]
   \[ = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} \]
   \[ = \underline{\hspace{1cm}} \]

10. \[ 10 \times 8 = \underline{\hspace{1cm}} \]
    \[ 8 \times 8 = \underline{\hspace{1cm}} \text{ groups of } 8 \]
    \[ = 10 \text{ groups of } 8 - \underline{\hspace{1cm}} \text{ groups of } 8 \]
    \[ = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} \]
    \[ = \underline{\hspace{1cm}} \]

11. \[ 5 \times 8 = \underline{\hspace{1cm}} \]
    \[ 7 \times 8 = \underline{\hspace{1cm}} \text{ groups of } 8 \]
    \[ = 5 \text{ groups of } 8 + \underline{\hspace{1cm}} \text{ groups of } 8 \]
    \[ = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} \]
    \[ = \underline{\hspace{1cm}} \]
Multiply and match.

12. Multiply by 8

- 2 \times 8
- 5 \times 8
- 6 \times 8
- 3 \times 8
- 4 \times 8
- 8 \times 8
- 9 \times 8
- 7 \times 8
- ?

- 40
- 64
- 8
- 24
- 16
- 72
- 32
- 48
- 56

13. What is the missing multiplication fact? _________
**Solve.**

**Example**

An octagon has 8 equal sides.
How many sides do 5 octagons have?

5 octagons have _________ sides.

14. 8 children make up a team.
How many children make up 7 teams?

_________ children make up 7 teams.

15. A chocolate cake has 8 cherries.
How many cherries do 6 such cakes have?

6 such cakes have _________ cherries.
Practice 5  Multiply by 9

Complete the multiplication fact. Then show on the number line.

1.  \(2 \times 9 = \underline{\phantom{00}}\)

\[0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20\]

Complete the multiplication fact. Then show on the area model.

2.  \(7 \times 9 = \underline{\phantom{00}}\)

Fill in the missing numbers.

3.  3 nines = \(3 \times \underline{\phantom{00}}\)

4.  4 nines = \(\underline{\phantom{00}} \times 9\)

Use multiplication facts to help you.
Fill in the missing numbers.

5. \[ 9 + 9 + 9 + 9 + 9 + 9 = 6 \times \underline{\hspace{1cm}} \]

6. \[ 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 9 \times \underline{\hspace{1cm}} \]

7. \[ 9 \times 8 = 8 \times \underline{\hspace{1cm}} \]

8. 8 nines = \[ 9 + 9 + 9 + 9 + 9 + 9 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} \]

Use multiplication facts to help you.

9. \[ 10 \times 4 = \underline{\hspace{1cm}} \]
   \[ 9 \times 4 = 10 \text{ groups of } 4 - \underline{\hspace{1cm}} \text{ group of } 4 \]
   \[ = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} \]
   \[ = \underline{\hspace{1cm}} \]

10. \[ 10 \times 9 = \underline{\hspace{1cm}} \]
    \[ 9 \times 9 = 10 \text{ groups of } 9 - \underline{\hspace{1cm}} \text{ group of } 9 \]
    \[ = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} \]
    \[ = \underline{\hspace{1cm}} \]

11. \[ 5 \times 9 = \underline{\hspace{1cm}} \]
    \[ 6 \times 9 = 5 \text{ groups of } 9 + \underline{\hspace{1cm}} \text{ group of } 9 \]
    \[ = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} \]
    \[ = \underline{\hspace{1cm}} \]
Match each ball to the correct basket.

12.

- $3 \times 9$ •
- $9 \times 9$ •
- $9 \times 5$ •
- $7$ nines •
- $36$ •
- $2 \times 9$ •
- $54$ •
- $9 \times 9$ •
- $81$ •
- $7 \times 9$ •
- $63$ •
- $9 + 9$ •
- $18$ •
- $9 + 9 + 9 + 9 + 9$ •
- $45$ •
- $4$ nines •
- $4 \times 9$ •
- $9 + 9 + 9 + 9 + 9 + 9$ •
- $6 \times 9$ •

Lesson 6.5 Multiply by 9
Solve.

13. Pamela pastes stickers on 4 cards. She pastes 9 stickers on each card. How many stickers does she paste in all?

\[ \_ \_ \_ \_ \times 9 = \_ \_ \_ \_ \]

She pastes \_ \_ \_ \_ \_ \_ \_ stickers in all.

Use the pictures to write a multiplication story.

14. scissors $6$

marker $4$

pencil $2$

____________________

____________________

____________________
Practice 6  Division: Finding the Number of Items in Each Group

Write two related division sentences.

Example

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

1. \[ 9 \times 5 = 45 \]
\[ 45 \div \_ = \_ \]
\[ 45 \div \_ = \_ \]

2. \[ 7 \times 9 = 63 \]
\[ 63 \div \_ = \_ \]
\[ 63 \div \_ = \_ \]

3. \[ 8 \times 6 = 48 \]
\[ 48 \div \_ = \_ \]
\[ 48 \div \_ = \_ \]
Fill in the missing numbers.

Example

\[6 \times \underline{7} = 42\]
So, \(42 \div 6 = \underline{7}\).

4. \(7 \times \underline{7} = 49\)
So, \(49 \div 7 = \underline{7}\).

5. \(8 \times \underline{6} = 48\)
So, \(48 \div 8 = \underline{6}\).

6. \(9 \times \underline{5} = 45\)
So, \(45 \div 9 = \underline{5}\).

Solve.

7. Mrs. Brown has 9 purses with 54 coins. Each purse has the same number of coins. How many coins does each purse have?

\[\underline{54} \div \underline{9} = \underline{6}\]
Each purse has \(6\) coins.

8. Austin collects 63 seashells. He puts them equally into 7 boxes. How many seashells does each box contain?

\[\underline{63} \div \underline{7} = \underline{9}\]
Each box contains \(9\) seashells.
Practice 7  Division: Making Equal Groups

Fill in the missing numbers.

1. \[ \underline{\hspace{2cm}} \times 6 = 54 \]  
2. \[ \underline{\hspace{2cm}} \times 8 = 56 \]  
   \[ 54 \div 6 = \underline{\hspace{2cm}} \]  
   \[ 56 \div 8 = \underline{\hspace{2cm}} \]

Divide.

3. \[ 21 \div 7 = \underline{\hspace{2cm}} \]  
4. \[ 72 \div 8 = \underline{\hspace{2cm}} \]

5. \[ 63 \div 9 = \underline{\hspace{2cm}} \]  
6. \[ 48 \div 6 = \underline{\hspace{2cm}} \]

Solve.

7. One tank holds 8 gallons of water. How many tanks are needed to hold 64 gallons of water?
   \[ \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \]
   \[ \underline{\hspace{2cm}} \text{ tanks are needed to hold 64 gallons of water.} \]

8. Donald packs 36 apples into some bags. Each bag contains 9 apples. How many bags does Donald use?
   \[ \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \]
   Donald uses \[ \underline{\hspace{2cm}} \text{ bags.} \]
1. Show $3 \times 6$ on the number line.

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \quad 11 \quad 12 \quad 13 \quad 14 \quad 15 \quad 16 \quad 17 \quad 18 \quad 19 \quad 20\]

2. Draw an array model to show $5 \times 7$.

3. Show $8 \times 9$ with the area model.

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Put On Your Thinking Cap!

Challenging Practice

Complete each skip-counting pattern.

1. 70 63 56 _______ _______ 35
    _______ _______ 14 7

2. 80 72 64 _______ _______ _______
    _______ _______ 16 8

Identify a number that does not belong in the group.
Then write the reason.
Use the number patterns to help you.

3. Number: _______
   Reason: ____________________________
           ____________________________
           ____________________________

4. Number: _______
   Reason: ____________________________
           ____________________________
           ____________________________
Put On Your Thinking Cap!

**Problem Solving**

1. I am a two-digit number.
   I am less than 50.
   Count in sixes and you will find me!
   Divide my tens digit by 2 and you will find my ones digit.
   What am I?

<table>
<thead>
<tr>
<th>Number</th>
<th>Tens Digit</th>
<th>Ones Digit</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1</td>
<td>2</td>
<td>X</td>
</tr>
</tbody>
</table>

12 + 6 = ____________

I am ____________.