CHAPTER

Multiplication Tables
of 6, 7, 8, and 9

Worksheet 1  Multiplication Properties

Study each number line. Then fill in the blanks.

Example

The number line shows ___3___ skips of ___4___.

___3___ skips of ___4___ = ___3___ groups of ___4___

= ___12___

1.

The number line shows _______ skips of _______.

_________ skips of _______ = _______ groups of _______

= _______
Fill in the blanks.

2. 3 skips of 4 = _______ groups of _______
   = _______ × _______

3. 2 skips of 5 = _______ groups of _______
   = _______ × _______

Look at the number line. Write the multiplication fact.

Example

\[
\begin{array}{c}
\text{Example} \\
0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 \\
\hline
6 & \times & 2 & = & 12 \\
\end{array}
\]

4. 

\[
\begin{array}{c}
\text{ } & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 & 18 & 19 & 20 \\
\hline
\text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } & \text{ } \\
\end{array}
\]

\[
\text{ } \times \text{ } \times \text{ } = \text{ }
\]
Show the sentence on the number line. Then circle the numbers.

**Example**
Skip count by 4 to 20.

5. Skip count by 5 to 25.

Show the multiplication fact on the number line.

**Example**
\[7 \times 3 = 21\]

6. \[6 \times 4 = 24\]
7. Show four multiplication facts that equal 12 on the number lines.

Example

\[ 12 \times 1 = 12 \]

\[ \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 12 \]

\[ \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 12 \]

\[ \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 12 \]

\[ \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 12 \]
Look at the number line. Write the multiplication facts.

Example

\[
\begin{align*}
7 \times 2 &= 14 \\
2 \times 7 &= 14
\end{align*}
\]

Changing the order of the numbers in a multiplication sentence does not change the answer. This is called the **Commutative Property of Multiplication**.

8.

\[
\begin{align*}
\_\_\_ \times \_\_\_ &= \_\_\_ \\
\_\_\_ \times \_\_\_ &= \_\_\_
\end{align*}
\]
Complete the multiplication fact. Then show the fact on the number line.

Example

\[6 \times 4 = \_24\_

9. \[4 \times 6 = \\

10. Write a statement to explain the pattern you see.

Use the given numbers to write two multiplication sentences. You may use each number more than once.

\[3  \ 4 \ 7 \ 8 \ 24\]

11. \[\_\_\_\_\_\_\times \_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_

12. \[\_\_\_\_\_\_\times \_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\]
Show the multiplication fact on the number line. Then explain the pattern.

Example

\[ 5 \times 1 \text{ and } 1 \times 5 \]

\[ 5 \times 1 \text{ is the same as } 1 \times 5. \text{ They are both equal to } 5. \]

OR

\[ 5 \times 1 = 1 \times 5 = 5 \]

Any number multiplied by 1 equals that number. This is called the multiplicative property of one.

13. \[ 4 \times 1 \text{ and } 1 \times 4 \]

14. \[ 6 \times 1 \text{ and } 1 \times 6 \]
15. Look at the statements you have written in Exercise 13 and 14. What can you conclude from the statements?

16. 7 × 1 = _______  
17. 9 × 1 = _______

18. 12 × 1 = _______  
19. 1 × 100 = _______

Complete.

Complete.

Fill in the circle next to the correct answer

20. 4 × 0 is
   a) sum of 4 and 0   b) difference between 4 and 0
   c) 4 groups of nothing  d) divide nothing by 4

21. Which diagram shows 3 × 0?
   a)  
   b)  
   c)  

Draw a picture to show the following

Example

\[ 4 \times 0 \]

Any number multiplied by 0 equals 0. This is called the Multiplicative Property of Zero.

22. \[ 2 \times 0 \]

23. \[ 7 \times 0 \]

24. What pattern do you notice?
Complete.

25. $8 \times 0 = \underline{\phantom{000}}$ 

26. $0 \times 15 = \underline{\phantom{000}}$

27. $41 \times 0 = \underline{\phantom{000}}$

28. $0 \times 29 = \underline{\phantom{000}}$

Example

<table>
<thead>
<tr>
<th>Method 1</th>
<th>Method 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2 \times 3 \times 5$</td>
<td>$2 \times 3 \times 5$</td>
</tr>
<tr>
<td>$= \underline{6} \times 5 = \underline{30}$</td>
<td>$= 2 \times 15 = \underline{30}$</td>
</tr>
</tbody>
</table>

Changing the way numbers in a multiplication sentence are grouped and multiplied does not change the answer. This is called the **Associative Property of Multiplication**.

29. **Method 1**

   $5 \times 2 \times 4$

   $= \underline{\phantom{000}} \times 4 = \underline{\phantom{000}}$

   **Method 2**

   $5 \times 2 \times 4$

   $= 5 \times \underline{\phantom{000}} = \underline{\phantom{000}}$

30. **Method 1**

   $4 \times 1 \times 5$

   $= \underline{\phantom{000}} \times \underline{\phantom{000}} = \underline{\phantom{000}}$

   **Method 2**

   $4 \times 1 \times 5$

   $= \underline{\phantom{000}} \times \underline{\phantom{000}} = \underline{\phantom{000}}$
31. **Method 1**

\[ 5 \times 2 \times 3 \]

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

**Method 2**

\[ 5 \times 2 \times 3 \]

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

32. What pattern do you notice?

33. **Multiply in any order.**

*Example*

\[ 4 \times 2 \times 3 = \_ 24 \]

\[ 8 \times 3 = 24 \]

OR

\[ 4 \times 6 = 24 \]

33. \[ 2 \times 5 \times 4 = \_] 

34. \[ 5 \times 1 \times 4 = \_] 

35. \[ 3 \times 0 \times 4 = \_]
36. \( 3 \times 5 \times 0 = \) ______

37. \( 4 \times 1 \times 2 = \) ______

38. \( 7 \times 2 \times 1 = \) ______

39. \( 1 \times 6 \times 4 = \) ______

40. \( 9 \times 1 \times 3 = \) ______

41. \( 8 \times 0 \times 2 = \) ______

42. \( 2 \times 3 \times 1 = \) ______
Worksheet 2  Multiply by 6

Complete.

Example

1 group of 6 dots = 1 × 6

= 6

A dot paper is an array model. The dots are arranged in rows and columns.

1.

2 groups of 6 dots = __________ × __________

= __________

2.

10 groups of 6 dots = __________ × __________

= __________
Shade the dots to show the multiplication sentence. Then fill in the blanks.

**Example**

3 \times 6 = 18

3.

5 \times 6 =

4.

7 \times 6 =
Express each array model as a multiplication fact.

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

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

7. \[ \underline{\hspace{1cm}} \times 6 = \underline{\hspace{1cm}} \]
8. 

\[
\underline{\text{___}} \times 6 = \underline{\text{___}}
\]

Fill in the missing numbers. Use array models to help you.

Example

a. 

5 groups of 6 dots

\[= \underline{5} \times \underline{6}\]

\[= \underline{30}\]

b. 

7 groups of 6 dots

\[= \underline{5} \text{ groups of 6 dots} + \underline{2} \text{ groups of 6 dots}\]

\[= \underline{30} + \underline{12}\]

\[= \underline{42}\]
9. a. 5 groups of 6 dots
   = _____ × _____ = _____

   b. 8 groups of 6 dots
   = 5 groups of 6 dots +
      _____ groups of 6 dots
   = _____ + _____
   = _____

10. a. 10 groups of 6 dots
    = _____ × _____ = _____

    b. 9 groups of 6 dots
    = 10 groups of 6 dots −
    _____ group of 6 dots
    = _____ − _____
    = _____
Multiply. Use array models to help you.

11. \(3 \times 6 = \) __________
12. \(2 \times 6 = \) __________
13. \(4 \times 6 = \) __________
14. \(5 \times 6 = \) __________
15. \(0 \times 6 = \) __________
16. \(1 \times 6 = \) __________
17. \(6 \times 6 = \) __________
18. \(8 \times 6 = \) __________
19. \(9 \times 6 = \) __________
20. \(7 \times 6 = \) __________
21. \(10 \times 6 = \) __________

Complete each number pattern. Use the multiplication table of 6 to help you.

22. 6 12 18 __________ __________ __________
23. 24 30 36 __________ __________ __________
Worksheet 3  Multiply by 7

Complete.

Example

1 group of 7 dots = $1 \times 7$

= \underline{7}

1.

2 groups of 7 dots = \underline{\underline{}} \times \underline{\underline{}}

= \underline{\underline{}}

2.

10 groups of 7 dots = \underline{\underline{}} \times \underline{\underline{}}

= \underline{\underline{}}
Shade the dots to show the multiplication sentence. Then fill in the blanks.

Example

\[ 4 \times 7 = 28 \]

3. 

\[ 5 \times 7 = \quad \]

4. 

\[ 8 \times 7 = \quad \]
Express each array model as a multiplication fact.

5. 

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

6. 

\[ \underline{\quad} \times \underline{\quad} = \underline{\quad} \]

7. 

\[ \underline{\quad} \times 7 = \underline{\quad} \]
Fill in the missing numbers. Use array models to help you.

**Example**

**a.**

5 groups of 7 dots  
= \( \frac{5}{\phantom{5}} \times \frac{7}{\phantom{7}} \)  
= 35

**b.**

6 groups of 7 dots  
= 5 groups of 7 dots + 1 group of 7 dots  
= 35 + 7  
= 42

**8. a.**

5 groups of 7 dots  
= \( \phantom{\frac{5}{\phantom{5}}} \times \phantom{\frac{7}{\phantom{7}}} = \phantom{\frac{35}{\phantom{35}}} \)

**b.**

8 groups of 7 dots  
= 5 groups of 7 dots + \( \phantom{\frac{5}{\phantom{5}}} \times \phantom{\frac{7}{\phantom{7}}} = \phantom{\frac{35}{\phantom{35}}} \)  
= \( \phantom{\frac{35}{\phantom{35}}} + \phantom{\frac{7}{\phantom{7}}} = \phantom{\frac{42}{\phantom{42}}} \)
2a. 10 groups of 7 dots
   = _____ × _____ = _____

2b. 9 groups of 7 dots
   = 10 group of 7 dots —
     _____ group of 7 dots
   = _____ — _____
   = _____

10a. 10 groups of 7 dots
    = _____ × _____ = _____

10b. 8 groups of 7 dots
    = 10 groups of 7 dots —
      _____ groups of 7 dots
    = _____ — _____
    = _____
Multiply. Use array models to help you.

11. \(2 \times 7 = \underline{\hspace{2cm}}\)  
12. \(3 \times 7 = \underline{\hspace{2cm}}\)  
13. \(5 \times 7 = \underline{\hspace{2cm}}\)  
14. \(4 \times 7 = \underline{\hspace{2cm}}\)  
15. \(0 \times 7 = \underline{\hspace{2cm}}\)  
16. \(1 \times 7 = \underline{\hspace{2cm}}\)  
17. \(7 \times 7 = \underline{\hspace{2cm}}\)  
18. \(6 \times 7 = \underline{\hspace{2cm}}\)  
19. \(8 \times 7 = \underline{\hspace{2cm}}\)  
20. \(9 \times 7 = \underline{\hspace{2cm}}\)  
21. \(7 \times 8 = \underline{\hspace{2cm}}\)  
22. \(7 \times 10 = \underline{\hspace{2cm}}\)  

Complete each number pattern.  
Use the multiplication table of 7 to help you.

23. \(7\ 14\ 21\ \underline{\hspace{2cm}}\ \underline{\hspace{2cm}}\ \underline{\hspace{2cm}}\)

24. \(21\ 28\ 35\ \underline{\hspace{2cm}}\ \underline{\hspace{2cm}}\ \underline{\hspace{2cm}}\)

Name: _______________________________   Date: ____________________
Worksheet 4  Multiply by 8

Example

1 group of 8 dots = 1 \times 8

= 8

1.

2 groups of 8 dots = \_\_\_\_\_\_ \times \_\_\_\_\_\_

= \_\_\_\_\_

2.

10 groups of 8 dots = \_\_\_\_\_\_ \times \_\_\_\_\_\_

= \_\_\_\_\_
Shade the dots to show the multiplication sentence. Then fill in the blanks.

**Example**

\[ 5 \times 8 = 40 \]

3. 

\[ 4 \times 8 = \quad \]

4. 

\[ 7 \times 8 = \quad \]
Express each array model as a multiplication fact.

Example

\[ \begin{array}{c}
\text{2} \\
\times 8 \\
\end{array} = 16\]

5. 

\[ \begin{array}{c}
\text{ } \\
\times \text{ } \\
\end{array} = \]

6. 

\[ \begin{array}{c}
\text{ } \\
\times 8 = \]

Fill in the missing numbers. Use array models to help you.

Example

a. 5 groups of 8 dots
   
   $\frac{5}{\times} \frac{8}{\quad} = \frac{40}{\quad}$

b. 6 groups of 8 dots
   
   $\frac{5}{\times} \frac{8}{\quad} + \frac{1}{\quad} \quad \text{group of 8 dots}$

   $\quad = \frac{40}{\quad} + \frac{8}{\quad} = \frac{48}{\quad}$

7. a. 5 groups of 8 dots

   $\quad = \quad \times \quad \quad = \quad$

b. 8 groups of 8 dots

   $\quad = \quad \times \quad \quad = \quad$

   $\quad + \quad$  

   $\quad = \quad$
3. a. 10 groups of 8 dots
    = _____ × _____ = _____

   b. 9 groups of 8 dots
    = 10 groups of 8 dots −
      _____ group of 8 dots
    = _____ − _____
    = _____

9. a. 10 groups of 8 dots
    = _____ × _____ = _____

   b. 7 groups of 8 dots
    = 10 groups of 8 dots −
      _____ groups of 8 dots
    = _____ − _____
    = _____
Multiply. Use array models to help you.

10. $3 \times 8 =$ 
11. $2 \times 8 =$ 
12. $5 \times 8 =$ 
13. $4 \times 8 =$ 
14. $0 \times 8 =$ 
15. $1 \times 8 =$ 
16. $6 \times 8 =$ 
17. $7 \times 8 =$ 
18. $9 \times 8 =$ 
19. $8 \times 8 =$ 

Complete the number pattern.
Use the multiplication table of 8 to help you.

20. 8 16 24 _______ _______ _______ 
21. 24 32 40 _______ _______ _______
Worksheet 5  Multiply by 9

Complete.

Example

1 group of 9 dots = $1 \times 9$

$= 9$

1.

2 groups of 9 dots = $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$

$= \underline{\hspace{2cm}}$

2.

10 groups of 9 dots = $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$

$= \underline{\hspace{2cm}}$
Shade the dots to show the multiplication sentence. Then fill in the blanks.

Example

\[ 5 \times 9 = 45 \]

3.

\[ 4 \times 9 = \quad \]

4.

\[ 7 \times 9 = \quad \]
Express each array model as a multiplication fact.

Example

\[3 \times 9 = 27\]

5.

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

6.

\[\quad \times 9 = \quad\]
Fill in the missing numbers. Use array models to help you.

Example

a. 5 groups of 9 dots
   \[= 5 \times 9\]
   \[= 45\]

b. 7 groups of 9 dots
   \[= 5 \text{ groups of } 9 \text{ dots } + 2 \text{ groups of } 9 \text{ dots}\]
   \[= 45 + 18\]
   \[= 63\]

7. a.

5 groups of 9 dots
   \[= \_\_\_ \times \_\_\_ = \_\_\_\_\_\_

b.

8 groups of 9 dots
   \[= 5 \text{ groups of } 9 \text{ dots } + \_\_\_ \text{ groups of } 9 \text{ dots}\]
   \[= \_\_\_ + \_\_\_\_\_
   \[= \_\_\_\_

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10 groups of 9 dots
= _____ × _____ = _____

9 groups of 9 dots
= 10 groups of 9 dots −
  _____ group of 9 dots
= _____ − _____
= _____

9.a.

10 groups of 9 dots
= _____ × _____ = _____

b.

8 groups of 9 dots
= 10 groups of 9 dots −
  _____ groups of 9 dots
= _____ − _____
= _____
Multiply. Use array models to help you.

10. \(2 \times 9 = \) ________  
11. \(3 \times 9 = \) ________  
12. \(5 \times 9 = \) ________  
13. \(4 \times 9 = \) ________  
14. \(0 \times 9 = \) ________  
15. \(1 \times 9 = \) ________  
16. \(6 \times 9 = \) ________  
17. \(7 \times 9 = \) ________  
18. \(9 \times 9 = \) ________  
19. \(8 \times 9 = \) ________  

Use finger counting to find the multiplication facts of 9.

\[1 \ \ \ \ \ \ \ \ 8\]
\[\begin{array}{c}
2 \times 9 = 18
\end{array}\]

Bend your second finger to show 2 times 9.  
\(2 \times 9 = 18\)

20. \(3 \times 9 = \) ________  
21. \(5 \times 9 = \) ________  
22. \(9 \times 7 = \) ________  
23. \(9 \times 6 = \) ________  
24. \(4 \times 9 = \) ________  
25. \(9 \times 8 = \) ________  
26. \(10 \times 9 = \) ________  
27. \(9 \times 9 = \) ________  

Complete the number pattern.  
Use the multiplication table of 9 to help you.

28. 9 18 27 ________ ________ ________ ________  
29. 27 36 45 ________ ________ ________ ________
Worksheet 6  Division: Finding the Number of Items in Each Group

The 12 pineapples have been divided into 6 equal groups. Each group has 2 pineapples.

Total number of items  Number of groups  Number of items in each group
12 ÷ 6 = 2

Study the diagram. Then complete the division sentence.

Example

21 ÷ 7 = 3
1. \[ \frac{\text{ }}{\text{ }} = \frac{\text{ }}{\text{ }} \]

2. \[ \frac{\text{ }}{\text{ }} = \frac{\text{ }}{\text{ }} \]
Circle the items into groups to show the division sentence. Then fill in the blanks.

Example

18 ÷ 6 = ___ 3 ___

3. 28 ÷ 7 = ___
4. \[ 35 \div 7 = \underline{\hspace{2cm}} \]

5. \[ 27 \div 9 = \underline{\hspace{2cm}} \]
Worksheet 7  Division: Making Equal Groups

![Diagram of pineapples divided into groups]

Total number of items  Number of items in each group  Number of groups

16 ÷ 2 = 8

Complete the division sentence. Circle the items into groups to help you.

Example

![Diagram of oranges divided into groups]

14 ÷ 2 = 7
1. \[ \square \div 4 = \square \]

2. \[ \square \div 5 = \square \]

3. \[ \square \div 3 = \square \]
Draw a diagram to show the division story. Then complete the division sentence.

4. Graham has 56 stamps. He puts them equally into groups of 8.

\[
\square \div \square = \square
\]

5. Rex puts 36 apples equally into 9 boxes.

\[
\square \div \square = \square
\]

Write two multiplication and two division sentences using the given numbers. Each number can be used more than once.

6. 7 6 42 48

Multiplication sentences: 

Division sentences: 
7. 5 45 20 4

Multiplication sentences: 

Division sentences: 

8. 7 63 56 8

Multiplication sentences: 

Division sentences: 

9. Write four numbers and ask your friend to write two multiplication and two division sentences using the numbers.