

# Review of Addition • Addition Stories • Missing Addends, Part 1

WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)<sup>†</sup>

**Mental Math:**

Add ten to a number:

$$\begin{array}{r} \text{a. } 20 \\ + 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b. } 34 \\ + 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c. } 10 \\ + 53 \\ \hline \end{array}$$

d.  $5 + 10$

e.  $25 + 10$

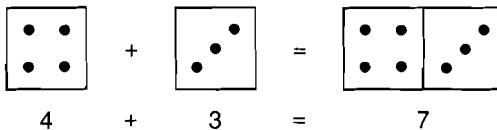
f.  $10 + 8$

**Patterns:**

Count by twos from 2 through 40 as you list the numbers in a column on your paper. Study the list. Which digits appear as final digits? Which digits do not appear as final digits?

NEW CONCEPTS

**Review of addition** Addition is the combining of two groups into one group. For example, when we count the dots on the top faces of a pair of dot cubes (dice), we are adding.




The numbers that are added are called **addends**. The answer is called the **sum**. The expression  $4 + 3 = 7$  is a **number sentence**. A number sentence is a complete sentence that uses numbers and symbols instead of words. Here we show two ways to add 4 and 3:

$$\begin{array}{r} 4 \text{ addend} \\ + 3 \text{ addend} \\ \hline 7 \text{ sum} \end{array} \qquad \begin{array}{r} 3 \text{ addend} \\ + 4 \text{ addend} \\ \hline 7 \text{ sum} \end{array}$$

<sup>†</sup>For instructions on how to use the Warm-up activities, please consult the preface.

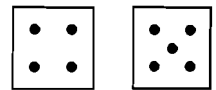
Notice that if the order of the addends is changed, the sum remains the same. This property of addition is true for any two numbers and is called the **commutative property of addition**. **When we add two numbers, either number may be first.**

$$4 + 3 = 7 \qquad 3 + 4 = 7$$


**When we add zero to a number, the number is not changed.** This property of addition is called the **identity property of addition**. If we start with a number and add zero, the sum is identical to the starting number.

$$4 + 0 = 4 \qquad 9 + 0 = 9 \qquad 0 + 7 = 7$$

Example 1 Write a number sentence for this picture:



**Solution** A number sentence for the picture is  $4 + 5 = 9$ . The number sentence  $5 + 4 = 9$  is also correct.

When adding three numbers, the numbers may be added in any order. Here we show six ways to add 4, 3, and 5. Each way the answer is 12.

$$\begin{array}{r}
 4 \\
 3 \\
 + 5 \\
 \hline
 12
 \end{array}
 \qquad
 \begin{array}{r}
 4 \\
 5 \\
 + 3 \\
 \hline
 12
 \end{array}
 \qquad
 \begin{array}{r}
 3 \\
 4 \\
 + 5 \\
 \hline
 12
 \end{array}
 \qquad
 \begin{array}{r}
 3 \\
 5 \\
 + 4 \\
 \hline
 12
 \end{array}
 \qquad
 \begin{array}{r}
 5 \\
 4 \\
 + 3 \\
 \hline
 12
 \end{array}
 \qquad
 \begin{array}{r}
 5 \\
 3 \\
 + 4 \\
 \hline
 12
 \end{array}$$

Example 2 Show six ways to add 1, 2, and 3.

**Solution** We can form two number sentences that begin with the addend 1.

$$1 + 2 + 3 = 6 \qquad 1 + 3 + 2 = 6$$

We can form two number sentences that begin with the addend 2.

$$2 + 1 + 3 = 6 \qquad 2 + 3 + 1 = 6$$

We can form two number sentences that begin with the addend 3.

$$3 + 1 + 2 = 6 \qquad 3 + 2 + 1 = 6$$

**Addition stories** Many word problems tell a story. Some stories are about **putting things together**. Look at this story:

*John had 5 marbles. He bought 7 more marbles.  
Now John has 12 marbles.*

There is a pattern to this story. John had **some** marbles. Then he bought **some more** marbles. When he put the marbles together, he found the **total** number of marbles. “**Some and some more**” stories like this have an addition pattern.

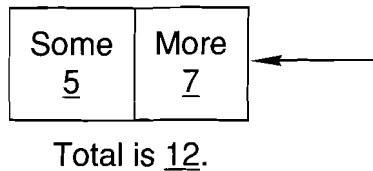
PATTERN	PROBLEM
Some	5 marbles
+ Some more	+ 7 marbles
<hr style="width: 100%; border: 0.5px solid black;"/>	<hr style="width: 100%; border: 0.5px solid black;"/>
Total	12 marbles

Here we show the pattern written sideways.

**PATTERN:** Some + some more = total

**PROBLEM:** 5 marbles + 7 marbles = 12 marbles

Here we show a diagram for the story:



**Example 3** Miguel saw 8 ducks. Then he saw 7 more ducks. How many ducks did Miguel see in all?

**Solution** This problem follows the idea of “some and some more.” We show the addition pattern below.

**PATTERN:** Some + some more = total

**PROBLEM:** 8 ducks + 7 ducks = 15 ducks

We find the total number by adding 8 and 7. Miguel saw **15 ducks** in all.

**Example 4** Samantha saw rabbits in the field. She saw 5 rabbits in the east field. She saw 3 rabbits in the west field. She saw 4 rabbits in the north field. How many rabbits did Samantha see in all?

**Solution** In this story there are three addends.

PATTERN	PROBLEM
Some	5 rabbits
Some more	3 rabbits
+ Some more	+ 4 rabbits
<hr style="width: 100%; border: 0.5px solid black;"/>	<hr style="width: 100%; border: 0.5px solid black;"/>
Total	12 rabbits

Samantha saw **12 rabbits** in all.

**Missing addends, part 1**

Some of the problems in this book will have an addend missing. When one addend is missing and the sum is given, the problem is to find the missing addend. Can you figure out the missing addend in this number sentence?

$$\begin{array}{c} \square \\ \cdot \quad \cdot \\ 2 \end{array} + \begin{array}{c} \square \\ \\ ? \end{array} = \begin{array}{c} \square \quad \square \\ \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \\ 7 \end{array}$$

Since we know that  $2 + 5 = 7$ , the missing addend is 5. We will often use a letter to represent a missing number, as we see in the example below.

**Example 5** Find each missing addend:

$$\begin{array}{r} \text{(a)} \quad 4 \\ + N \\ \hline 7 \end{array}$$

$$\text{(b)} \quad B + 6 = 10$$

**Solution** (a) The letter  $N$  stands for a missing addend. Since  $4 + 3 = 7$ , the letter  $N$  stands for the number **3** in this number sentence.

(b) In this problem the letter  $B$  is used to stand for the missing addend. Since  $4 + 6 = 10$ , the letter  $B$  stands for the number **4**.

**LESSON PRACTICE**

**Practice set** Add:

a.  $5 + 6$

b.  $6 + 5$

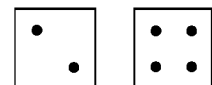
c.  $8 + 0$

d.  $4 + 8 + 6$

e.  $4 + 5 + 6$

f. Diane ran 5 laps in the morning. She ran 8 laps in the afternoon. How many laps did she run in all?

g. Write two number sentences for this picture to show the commutative property:



h. Show six ways to add 1, 3, and 5.

Find each missing addend:

i.  $7 + N = 10$

j.  $A + 8 = 12$

## MIXED PRACTICE

- There were 5 singers in the first row and 7 singers in the second row. How many singers were in the first two rows?
- Ling had 6 coins in her left pocket and 3 coins in her right pocket. How many coins did Ling have in both pockets?

Find each sum or missing addend:

3.  $9 + 4$

4.  $8 + 2$

5. 
$$\begin{array}{r} 4 \\ + N \\ \hline 9 \end{array}$$

6. 
$$\begin{array}{r} W \\ + 5 \\ \hline 8 \end{array}$$

7. 
$$\begin{array}{r} 6 \\ + P \\ \hline 8 \end{array}$$

8. 
$$\begin{array}{r} Q \\ + 8 \\ \hline 8 \end{array}$$

9.  $3 + 4 + 5$

10.  $4 + 4 + 4$

11.  $6 + R = 10$

12.  $X + 5 = 6$

13. 
$$\begin{array}{r} 5 \\ 5 \\ + 5 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 8 \\ 0 \\ + 7 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 6 \\ 5 \\ + 4 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 9 \\ 9 \\ + 9 \\ \hline \end{array}$$

17. 
$$\begin{array}{r} M \\ + 9 \\ \hline 10 \end{array}$$

18. 
$$\begin{array}{r} 9 \\ + F \\ \hline 12 \end{array}$$

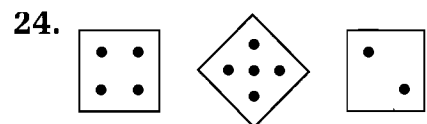
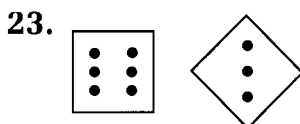
19. 
$$\begin{array}{r} Z \\ + 5 \\ \hline 10 \end{array}$$

20. 
$$\begin{array}{r} 0 \\ + N \\ \hline 3 \end{array}$$

21.  $3 + 2 + 5 + 4 + 6$

22.  $2 + 2 + 2 + 2 + 2 + 2 + 2$

Write a number sentence for each picture:



25. Show six ways to add 2, 3, and 4.

26. Sometimes a missing number is shown by a shape instead of a letter. Choose the correct number for  $\Delta$  in the following number sentence:

$$\Delta + 3 = 10$$

A. 3

B. 7

C. 10

D. 13