

## Solving Two-Step Word Problems

**3.OA.8**

Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.



### Understand the Standards

Imagine you have 4 packages of hot dog buns at a picnic. Each package has 8 buns. At the end of the picnic, there are 10 buns left. How can you find out how many buns got eaten?

**Words to Know**  
order of operations

Sometimes it takes more than one step to solve a problem. It might also take more than one operation to solve a problem. Use key words to help you decide if you need to add, subtract, multiply, or divide to solve a problem.

Addition	Subtraction	Multiplication	Division
add	difference	times	each
altogether	fewer	every	out of
both	how many more	of	quotient
in all	how much more	increased by	even groups
total	how much left	multiplied by	
combined	decreased by	product of	
sum			

Remember to follow the **order of operations** with each step of the problem.

#### Order of Operations

- 1) Do any operations in parentheses.
- 2) Work from left to right, multiplying and dividing.
- 3) Work from left to right, adding and subtracting.



## Guided Instruction

To solve multi-step problems, follow these steps.

**Step 1** Read the problem carefully. What information is given? What are you asked to find?

Sadie bought 8 notebooks. Each notebook cost \$2. She paid with a twenty-dollar bill. What is her change,  $c$ ?

*What information is given?* Sadie bought 8 notebooks. Each notebook cost \$2. She paid with a twenty-dollar bill.

*What are you asked to find?* How much change she gets,  $c$ .

**Step 2** Make a plan. Break the problem into smaller parts. Decide how to solve each part.

*What operation should you use to find how much the notebooks cost in all?*  
multiplication

*What operation should you use to find how much change she gets,  $c$ ?*  
subtraction

**Step 3** Solve the problem.

$$\text{Total cost} = 8 \times \$2 = \$16 \quad c = \$20 - \$16 = \$4$$

**Step 4** Check your answer. Work backward from your answer.

$$\$20 - \$4 = \$16 \quad \$16 \div 2 = 8, \text{ so the answer is correct.}$$



## On Your Own

Solve each problem.

- Alayna bought 3 pizzas. Each pizza has 8 slices. She and her five friends ate 14 slices of pizza altogether. How many slices,  $n$ , are left?

Total number of slices =  $3 \times 8 = \underline{\hspace{2cm}}$ ;  $n = \underline{\hspace{2cm}} - 14 = \underline{\hspace{2cm}}$   
slices left

- Karsten has 16 blue marbles and 14 red marbles. He wants to divide his marbles into groups of 5. How many,  $m$ , will be in each group?

Total number of marbles =  $16 + 14 = \underline{\hspace{2cm}}$ ;  $m = \underline{\hspace{2cm}} \div 5 = \underline{\hspace{2cm}}$   
marbles

- Tickets to a play are \$5 for children and \$8 for adults. How much will tickets to the play cost for 3 children and 2 adults?

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4. Elizabeth bought baskets for her shelves. She bought 3 sets of baskets. Each set has 8 baskets. She will divide the baskets evenly between 4 shelves. How many baskets,  $b$ , will be on each shelf?
- \_\_\_\_\_
5. Kirk wants to ride his bike 30 miles in the next 5 days. He misses the first two days because it rains. If he rides the same number of miles each of the remaining days, how many miles,  $m$ , does he ride each day?
- \_\_\_\_\_
6. Mi-Cha and four friends each have 9 crackers. They each eat 2 crackers. Now how many crackers,  $c$ , do they have in all?
- \_\_\_\_\_

**Answer the questions. Share your ideas with a classmate.**

7. Luisa has 72 apples divided between 9 bags. Each bag has the same number of apples. She adds 8 apples to the last bag. How many apples are in the last bag now? Explain how you found your answer.
- \_\_\_\_\_
- \_\_\_\_\_

8. Josie sold 8 tomato plants from her garden store. She still has 6 tomato plants each in 7 containers. How many tomato plants did she start with? Explain how you found your answer.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Answer the questions below.**

9. Javier practiced 6 pages of spelling words. Julia practiced 5 pages of spelling words. There are 8 spelling words on each page. How many spelling words did they practice in all?
- A.** 30                      **B.** 40
- C.** 48                      **D.** 88

**10.** Lia read 12 pages of a book each afternoon for 4 days. The book has 64 pages. How many pages does she have left to read to finish the book?

- A.** 12                      **B.** 48  
**C.** 16                      **D.** 18

**11.** Maggie has 5 packages of beads. Each package has 8 beads. If she uses 10 beads for each necklace she makes, how many necklaces can she make with her beads? Show your work.

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**Elevate** **12.** Sebastian had \$20. He spent \$6 on lunch. He wants to buy 3 games that each cost \$5. Does he have enough money to buy the games? Explain.

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**Elevate** **13.** Natalia made 4 batches of granola. Each batch has 6 cups of granola. She already had 3 cups of granola. She wants to divide all the granola equally into 3 bags. She adds  $6 + 3$  and then multiplies by 4 to get 36 cups of granola. Then she divides by 3 to find that she needs to put 12 cups of granola in each bag. How many cups does she actually need to put in each bag? Explain what she did incorrectly.

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