

Learn
BRIGHT

WORD PROBLEMS WITH EQUATIONS

$$26 + x = 42$$

GRADE **6**

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Classroom Procedure:

1. Begin by having students review solving one-step and two-step equations.
2. While reading the content pages, reinforce vocabulary and give students additional examples of Word Problems with Equations problems in order to help them practice. Use the additional resources to enhance understanding.
3. Introduce notes on Word Problems with Equations. Have students practice problems with all of the operations.
4. Follow Activity page with students. Have students work individually or in a small groups of 3 on the activity.
5. Distribute Practice page. Check and review the students' responses as a class.
6. Distribute the Homework page. Have students work a few problems at the beginning of the next class to reinforce their understanding.
7. In closing, ask students to think about which words are keys to understanding which operation to use in the problem. Allow for responses and discussion.

Lesson Title:

Word Problems with Equations

Subject: Math

Approximate Grade Level: 6

Objectives: Students will be able to solve real-world and mathematical problems by writing and solving equations.

State Educational Standards*

LB.Math.Content.6.EE.B.7

Class Sessions (*45 minutes*): 1

Teaching Materials/Worksheets:

Word Problems with Equations content pages

Activity pages

Practice page

Homework page

Student Supplies: None

Prepare Ahead of Time: Copy Materials

Options for Lesson: Have students share their word problems with the class in various ways – they could use PowerPoint to write and display an answer, they could make a poster for one of the questions, they could choose one problem to write down and exchange with another group to solve and check. Have students practice with one step equations in writing variables before embarking on this lesson.

*Lessons are aligned to meet the education objectives and goals of most states. For more information on your state objectives, contact your local Board of Education or Department of Education in your state.

Word Problems with Equations

Word problems require you to solve a problem using a mathematical operation (addition, subtraction, multiplication, division). Using key words for each operation, you can determine which operation to use. It is important to look at how the quantities are related to understand how to set up the problem. Let's look at a few examples to see how this works.

EXAMPLE 1

Together, John and Michael have 42 apps on their phone. If John has 26 apps on his phone, how many does Michael have?

Without thinking of the numbers, we want to create an equation using the situation.

John's apps + Michael's apps = Total number of apps

Then fill in the information from the word problem.



John's apps + Michael's apps = Total number of apps

$$26 + x = 42$$

Remember that the x represents a variable. A variable is a place holder for an unknown quantity.

Let's solve the equation to find the answer!

$$26 + x = 42$$

$$\begin{array}{r} -26 \\ 26 + x = 42 \end{array}$$

$$x = 16$$

Michael has 16 apps on his phone.

EXAMPLE 2

A total of 331 people went on a tour. Six buses were filled and 7 people went in a car. How many people were on each bus?

Without thinking of the numbers, we want to create an equation using the situation.

Number of Buses * People in each bus + Car riders = Total number of people

Then fill in the information from the word problem.

Number of Buses * People in each bus + Car riders = Total number of people

$$6 * x + 7 = 331$$

Remember that the x represents a variable. A variable is a place holder for an unknown quantity.

Let's solve the equation to find the answer!

$$\begin{array}{r} 6x + 7 = 331 \\ -7 \quad -7 \\ \hline 6x = 324 \\ \div 6 \quad \div 6 \\ \hline x = 54 \end{array}$$

There were 54 people on each bus.



EXAMPLE 3

Abby had \$24 to spend on seven bath bombs. After buying them, she had \$10. How much did each bath bomb cost?

Without thinking of the numbers, we want to create an equation using the situation.

Number of Bath Bombs * Cost of Bath Bomb + Money Left = Total Money

Then fill in the information from the word problem.

Number of Bath Bombs * Cost of Bath Bomb + Money Left = Total Money

$$7 * x + 10 = 24$$

Remember that the x represents a variable. A variable is a place holder for an unknown quantity.

Let's solve the equation to find the answer!

$$\begin{array}{r} 7x + 10 = 24 \\ -10 \quad -10 \\ \hline 7x = 14 \\ \div 7 \quad \div 7 \\ \hline x = 2 \end{array}$$

Abby spent \$2 on each bath bomb.





Activity

Name _____ Date _____



Instructions: Write three different word problems for each scenario and solve the problem using an equation.

Hourly wage * Number of hours – money spent = money left

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One person has something * the number of times they have it + another person has something = total they have together

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Instructions: Write three different word problems for each scenario and solve the problem using an equation.
ANSWERS WILL VARY

Hourly wage * Number of hours – money spent = money left

Jeena earned \$8 a day for walking the neighbor's dog while they were out of town. She bought a new necklace for \$22 with the money and had \$10 left. How many days did Jeena dog sit?

$$8x - 22 = 10$$

$$x = 4$$

Jeena watched the neighbor's dog for 4 days.

One person has something * the number of times they have it + another person has something = total they have together

Jeff bought three comic books each weekend for 7 weeks. Tye has a comic book collection too. If they have a total of 45 comics, how many does Tye own?

$$3*7 + x = 45$$

$$x = 24$$

Tye owns 24 comic books.



Practice

Name _____ Date _____



Instructions: Solve the following problems. Write the equation and show your work.

Cody took the money he got from washing his mother's car and spent \$5.75 on a movie and \$3.00 on a candy bar. If he had \$4.25 left, how much did his mother pay him to wash her car?

Ashley has 23 green M&Ms. Together she and her best friend, Tara, have 51 M&Ms. How many M&Ms does Tara have?

Jodi worked for 22 hours to finish the project for work. If she made \$187 on the project, how much did she make each hour?

Ahmed bought a new phone case for \$5 and four packs of gum. He spent a total of \$25. How much did each pack of gum cost?

Maria won 40 super bouncy balls at a party. She gave two to each of her friends. At the end of the party, Maria had 8 bouncy balls left. How many friends does she have?

Harold decided to sell some of his Pokemon cards. He sold half of his cards, and then bought 8 more. He now has a total of 58 cards. How many Pokemon cards did he start with?



Instructions: Solve the following problems. Write the equation and show your work.

<p>Cody took the money he got from washing his mother's car and spent \$5.75 on a movie and \$3.00 on a candy bar. If he had \$4.25 left, how much did his mother pay him to wash her car?</p> <p>$x - \\$5.75 - \\$3.00 = \\$4.25$ $x = \\$13.00$</p>	<p>Ashley has 23 green M&Ms. Together she and her best friend, Tara, have 51 M&Ms. How many M&Ms does Tara have?</p> <p>$x + 23 = 51$ $x = 28$ M&Ms</p>
<p>Jodi worked for 22 hours to finish the project for work. If she made \$187 on the project, how much did she make each hour?</p> <p>$22x = 187$ $x = \\$8.50$ per hour</p>	<p>Ahmed bought a new phone case for \$5 and four packs of gum. He spent a total of \$25. How much did each pack of gum cost?</p> <p>$4x + 5 = 25$ $x = \\$5$ for one pack of gum</p>
<p>Maria won 40 super bouncy balls at a party. She gave two to each of her friends. At the end of the party, Maria had 8 bouncy balls left. How many friends does she have?</p> <p>$2x + 8 = 40$ $x = 16$ friends</p>	<p>Harold decided to sell some of his Pokemon cards. He sold half of his cards, and then bought 8 more. He now has a total of 58 cards. How many Pokemon cards did he start with?</p> <p>$x/2 + 8 = 58$ $x = 100$ cards</p>



Homework

Name _____ Date _____



Instructions: Solve the equation and then use the information to write your own word problem.

$$3x + 9 = 21$$

$$\frac{x}{2} - 12 = 6$$

$$15x - 45 = 90$$

$$5x + 3 = 38$$



Instructions: Solve the equation and then use the information to write your own word problem.

WORD PROBLEM ANSWERS WILL VARY

$$3x + 9 = 21$$

$$x = 4$$

Angela collected three new rocks to paint each day. Her mom gave her 9 rocks she found at work. How many days will it take for Angela to have 21 rocks?

$$\frac{x}{2} - 12 = 6x = 36$$

Yasmine baked a lot of cookies. She gave half to the students in her class. Then she gave a dozen to the teachers. At the end of the school day, there were 6 cookies left. How many did Yasmine start with?

$$15x - 45 = 90$$

$$x = 9$$

$$5x + 3 = 38$$

$$x = 7$$