

NAME: \_\_\_\_\_



## Purpose

To translate sentences involving percents into equations

## Math Words

**solve for  $x$** 

When I solve an equation for  $x$ , I find the number for  $x$  that makes the equation true.

\_\_\_\_\_

**variable**

In the equation  $3 + x = 7$ ,  $x$  is called a variable. The only value of  $x$  that makes this equation true is 4, because  $3 + 4 = 7$ .

\_\_\_\_\_

**10 percent of**

I can find 10% of a number by multiplying the number by  $\frac{10}{100}$ ,  $\frac{1}{10}$ , or 0.1.

\_\_\_\_\_

## Starter Problem

Think about the meaning. Write an equation and solve.

What number is 3 less than 25% of 24? \_\_\_\_\_

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## Student Thinking



Javier

I'll use  $x$  for the missing number. First I have to find 25% of 24 and then find 3 less than that. For 25% of 24, I multiplied 0.25 or  $\frac{1}{4}$  times 24. I got 6, and then subtracted 3. So,  $x$  is equal to 3.



$$\begin{aligned} x &= 25\% \cdot 24 - 3 \\ x &= (0.25 \cdot 24) - 3 \\ x &= 6 - 3 \\ x &= 3 \end{aligned} \quad \frac{1}{4} \cdot 24 = 6$$



Aurora

I wrote an equation in order. For "what number is" I wrote " $x =$ ". For "3 less" I wrote " $3 -$ ". For "25% of 24" I wrote " $0.25 \cdot 24$ ". So 3 minus 0.25 is 2.75, times 24 is 66.



$$\begin{aligned} x &= 3 - 0.25 \cdot 24 \\ x &= 2.75 \cdot 24 \\ x &= 66 \end{aligned} \quad 3 - 0.25 = 2.75$$

## Things to Remember

- \* \_\_\_\_\_
- \* \_\_\_\_\_



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## Our Turn

Write and solve an equation.

1. What number is 5 less than 50% of 30?

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2. 30% of what number is equal to 30?

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3.  $x = (20\% \cdot 50) + 6$

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## My Turn

Write and solve an equation.

1. What number is 7 more than 40% of 10?

\_\_\_\_\_

2. 60% of 80 is equal to 4 less than what number?

\_\_\_\_\_

3.  $x = (75\% \cdot 36) - 5$

\_\_\_\_\_

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**Multiple Choice Mini Lesson**

Fill in the circle next to the answer you choose.

1. What number is 8 less than 25% of 80?

- ☐ 48      ☐ 12      ☐ 18

2. Which equation will help you find the missing number for  
What number is 8 less than 70% of 70?

- ☐  $x = 8 - (0.70\% \cdot 7)$       ☐  $x = (70\% \cdot 7) + 8$       ☐  $x = (70\% \cdot 70) - 8$



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## Writing Task Mini Lesson

Explain how you know  $x = 3$  is the solution to the problem. You may draw a picture or write an equation to help you explain.

A number  $x$  is 7 less than 20% of 50.  $x =$  \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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\_\_\_\_\_

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