

In the previous unit, you answered questions about problem situations by using the rate to write an equation and making tables and graphs. Now you will answer questions by solving equations.

When solving an equation, the goal is to get the variable by itself on one side of the equal sign. You do this by performing the opposite operation to both sides to undo the addition or subtraction, then undo the multiplication or division.

Example. Recall that in the Walk-A-Thon situation, Gilbert earned \$2 for each mile that he walked. The equation for his plan was  $y = 2x$ , where  $y$  is the amount of money earned and  $x$  is the number of miles walked. If we know that Gilbert earned \$26, we can set up an equation to solve for the number of miles he walked. \$26 is the  $y$ -value, so we replace  $y$  with 26.

$$\begin{aligned} \text{Solve: } 26 &= 2x \\ \frac{26}{2} &= \frac{2x}{2} \\ 13 &= x \end{aligned}$$

If Gilbert earned \$26, then he walked 13 miles.

1. In Anna's plan, she earned \$5 plus \$.50 per mile, and her equation was  $y = 5 + .50x$ . If Anna earned \$25, how many miles did she walk?
2. Devon wants to order a pizza. Build Your Own Pizza charges \$10 for a cheese pizza plus \$2 for each topping. If Devon has \$22, how many toppings can he get on his pizza?

3.  $23 + x = -16$

4.  $23 = 5 - 9w$

5.  $\frac{1}{2}x + 13 = 25$

6.  $10 - 4c = 74$

