

Classwork *\* Algebraic Method - what you do to one side, you do to the other*

Notes

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 of the equal sign in order to undo the operations being performed on the variable. You will undo by working the order of operations in reverse (A/S, D/M, E, P)

1 2 3 4

Write and solve an equation for each of the following problems.

$$y = 5 + .50x$$

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?

y: earnings  
x: miles

$$\begin{array}{r} 25 = 5 + 0.50x \\ -5 \quad -5 \\ \hline 20 = 0.50x \\ \cdot 20 \quad \cdot 20 \\ \hline 40 = x \end{array}$$

**40 miles**

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?

p: price  
t: toppings

$$\begin{array}{r} 22 = 10 + 2t \\ -10 \quad -10 \\ \hline 12 = 2t \\ \cdot 2 \quad \cdot 2 \\ \hline 6 = t \end{array}$$

**6 toppings**

3.  $23 + x = -16$

$$\begin{array}{r} 23 + x = -16 \\ -23 \quad -23 \\ \hline x = -39 \end{array}$$

4.  $23 = 5 - 9w$

$$\begin{array}{r} 23 = 5 - 9w \\ -5 \quad -5 \\ \hline 18 = -9w \\ \cdot 9 \quad \cdot 9 \\ \hline -2 = w \end{array}$$

**-2 = w**

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

$$\begin{array}{r} \frac{1}{2}x + 13 = 25 \\ -13 \quad -13 \\ \hline \frac{1}{2}x = 12 \\ \cdot \frac{2}{2} \quad \cdot \frac{2}{2} \\ \hline x = 24 \end{array}$$

**x = 24**

6.  $10 - 4c = 74$

$$\begin{array}{r} 10 - 4c = 74 \\ -10 \quad -10 \\ \hline -4c = 64 \\ \cdot 4 \quad \cdot 4 \\ \hline c = -16 \end{array}$$

**c = -16**

Find the number described in each problem by writing and solving an equation.

7. If Michael adds ten to three times his number, he gets -14. What is Michael's number?

*Sling shot words: FROM TO THAN*

$$\begin{array}{r} 3n + 10 = -14 \\ -10 \quad -10 \\ \hline 3n = -24 \\ \cdot 3 \quad \cdot 3 \\ \hline n = -8 \end{array}$$

**n = -8**

8. If Sarah subtracts five times her number from 24, she gets 4. What is Sarah's number?

$$\begin{array}{r} 24 - 5n = 4 \\ -24 \quad -24 \\ \hline -5n = -20 \\ \cdot 5 \quad \cdot 5 \\ \hline n = 4 \end{array}$$

**n = 4**