

Creating and Solving Equations

Objective: We will be able to create an equation in one variable and then solve the problem.

1 Example Write and solve an equation to solve the problem $(a - 5)$

Aaron and Alice are bowling. Alice's score is twice the difference of Aaron's score and 5. The sum of their scores is 320. Find each student's bowling score.

Let $a = \text{Aaron bowling score}$. Alice + Aaron = 320

$$\begin{aligned} \text{Alice} &= 2(a - 5) \\ \text{Aaron} &= a \end{aligned}$$

$$2(a - 5) + a = 320$$

$$2a - 10 + a = 320$$

$$3a - 10 = 320$$

$$\frac{3a}{3} = \frac{330}{3}$$

$$a = 110$$

↳ Aaron score

Alice $\rightarrow 210$

Alice score was 210
and Aaron was 110.

2 Example Write and solve an equation to solve each problem.

Mari, Carlos, and Amanda collect stamps. Carlos has five more stamps than Mari, and Amanda has three times as many stamps as Carlos. Altogether, they have 100 stamps. Find the number of stamps each person has.

let $\Delta =$ # of stamps that Mari has

$$\text{Mari} = \Delta = 16$$

$$\text{Carlos} = \Delta + 5 = 21$$

$$\text{Amanda} = 3(\Delta + 5) = 63$$

$$\text{Mari} + \text{Carlos} + \text{Amanda} = 100$$

$$\Delta + \Delta + 5 + 3(\Delta + 5) = 100$$

$$\Delta + \Delta + 5 + 3\Delta + 15 = 100$$

$$5\Delta + 20 = 100$$

$$\underline{-20 \quad -20}$$

$$\frac{5\Delta}{5} = \frac{80}{5}$$

of stamps Mari has $\rightarrow \Delta = 16$

Mari has 16 stamps, Carlos has 21 stamps and Amanda has 63 stamps.

3 Example Write and solve an equation to solve the problem

A rectangular garden is fenced on all sides with 256 feet of fencing. The garden is 8 feet longer than it is wide. Find the length and width of the garden.

$l =$ length
 $w =$ width

$$P = 2l + 2w$$

$$256 = 2(w + 8) + 2w$$

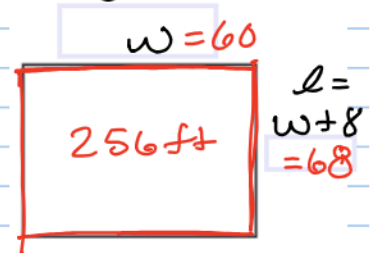
$$256 = 2w + 16 + 2w$$

$$256 = 4w + 16$$

$$\underline{-16 \quad -16}$$

$$\frac{240}{4} = \frac{4w}{4}$$

$$60 = w$$



The length is 68 ft and width is 60 ft.