

C: Solving $a(x+b)=c$ Continued

Reminder

x-statement

equation

Solve

Sentence

Examples:

1. The mean of two numbers is 6.4. One of the numbers is 16.2. What is the other number?

$$\text{mean} = \frac{\# + \# + \# + \#}{\text{how many numbers.}} \quad x \text{ is other number}$$

$$6.4 = \frac{16.2 + x}{2}$$

$$\frac{6.4}{1} \times \frac{2}{2} = \frac{16.2 + x}{2} \times \frac{2}{2}$$

$$2(16.2 + x) = (6.4)(2)$$

$$\begin{array}{r} 16.2 + x = 12.8 \\ -16.2 \quad -16.2 \end{array}$$

$$\boxed{x = -3.4}$$

The other number is 6.4.

2. The regular pentagon has a perimeter of 37.6 cm. What is the value of x ? What is the side length?



$$\text{Perimeter} = 5 \times \text{side length}$$

$$37.6 = 5(x-6)$$

$$37.6 = 5(x-6)$$

$$37.6 = 5x - 30$$

$$\begin{array}{r} 37.6 = 5x - 30 \\ +30 \quad +30 \end{array}$$

$$67.6 = 5x$$

$$\frac{67.6}{5} = \frac{5x}{5}$$

$$\boxed{13.52 = x}$$

$$\begin{array}{r} \text{side length} = x - 6 \\ = 13.52 - 6 \end{array}$$

$$\boxed{= 7.52 \text{ cm}}$$

The value of x is 13.52 cm ; The side length is 7.52 cm.

3. You buy 4 cans of paint using a coupon that takes off \$3.50 from each can. If you pay \$185.96 altogether, what is the regular price of each can?

$$\text{TOTAL COST} = 4(\text{cost of one can}) \quad x - \text{regular price}$$

$$\$185.96 = 4(\text{regular} - 3.50)$$

$$185.96 = 4(x - 3.50)$$

$$185.96 = 4x - 14$$

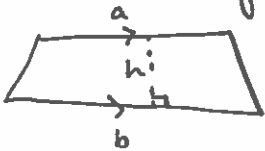
$$+14 \quad +14$$

$$\frac{199.96}{4} = \frac{4x}{4}$$

$$\boxed{\$49.99 = x}$$

The regular price of each can is \$49.99

4. The area of a trapezoid is $A = \frac{1}{2}(a+b)h$.



- Find h if $A = 54.6 \text{ cm}^2$, $a = 4.6 \text{ cm}$, $b = 9.4 \text{ cm}$.

$$A = \frac{1}{2}(a+b)h$$

$$54.6 = \frac{1}{2}(4.6 + 9.4)h \quad * \text{BEDMAS}$$

$$54.6 = \frac{1}{2}(14)h$$

$$54.6 = \frac{1}{2} \left(\frac{14}{1} \right) \left(\frac{h}{1} \right)$$

$$54.6 = \frac{7h}{1}$$

$$\frac{54.6}{7} = \frac{7h}{7}$$

$$\boxed{7.8 \text{ cm} = h}$$

- b) Find a if $A = 60 \text{ cm}^2$, $b = 5.7 \text{ cm}$, $h = 9 \text{ cm}$

$$A = \frac{1}{2} (a+b)h$$

$$60 = \frac{1}{2} (a + 5.7) \times 9$$

$$60 = \left(\frac{a}{2} + \frac{5.7}{2} \right) \left(\frac{9}{1} \right)$$

$$60 = \frac{9a}{2} + \frac{51.3}{2}$$

$$60 = \frac{9a}{2} + 25.65$$

$$-25.65 \quad -25.65$$

$$\frac{34.35 \times 9a}{2}$$

$$\frac{9a}{2} = \frac{68.7}{2}$$

$$a = 7.63 \text{ cm}$$

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