

Define the variable, write an equation & solve

1. Adam's brother is ^{Mult. 2}twice as old as Adam. The sum of their ages is 12. How old is each brother?

$$\begin{array}{l}
 + \\
 x = \text{Adams age } 4 \text{ yrs} \quad x + 2x = 12 \\
 2x = \text{Brother's age } 8 \text{ yrs} \quad \frac{3x}{3} = \frac{12}{3} \\
 \quad \quad \quad x = 4
 \end{array}$$

2. The sum of three consecutive even integers is 96. Find the integers.

$$\begin{array}{l}
 x = 1^{\text{st}} \# \quad 30 \quad (x) + (x+2) + (x+4) = 96 \\
 x+2 = 2^{\text{nd}} \# \quad 32 \quad 3x + 6 = 96 \\
 x+4 = 3^{\text{rd}} \# \quad 34 \quad \quad \quad -6 \quad -6 \\
 \quad \quad \quad 96 \quad \quad \quad \hline \quad \quad \quad 3x = 90 \\
 \quad \quad \quad \quad \quad \quad \frac{3}{3} \quad \frac{90}{3} \\
 \quad \quad \quad \quad \quad \quad x = 30
 \end{array}$$

3. The length of a rectangle is two more than four ^{Mult.} times the width. If the perimeter is 94 find the dimensions.

$$\begin{array}{l}
 w = \text{width} \quad w \quad 4w+2 \quad 10w+4 = 94 \\
 4w+2 = \text{length} \quad 4w+2 \quad \quad \quad -4 \quad -4 \\
 4(9)+2 \quad \quad \quad \hline \quad \quad \quad 10w = 90 \\
 38 \quad \quad \quad \quad \quad \quad \frac{10}{10} \quad \frac{90}{10} \\
 \quad \quad \quad \quad \quad \quad w = 9 \\
 \quad \quad \quad \quad \quad \quad \boxed{\begin{array}{l} \text{width} = 9 \\ \text{length} = 38 \end{array}}
 \end{array}$$

4. Amy scored an 68, 89 and 78 on her tests. What does she need to score on the next test to reach her goal of an 75% average on her tests?

$x = \text{next test score}$

$$\frac{68 + 89 + 78 + x}{4} = 75$$

$$(4) \quad \frac{235 + x}{4} = 75 (4)$$

$$\begin{array}{r}
 235 + x = 300 \\
 -235 \quad -235 \\
 \hline
 x = 65
 \end{array}$$

Unit Two

Study Guide