

Lesson 5-6

Example 1

An airplane flew 1610 miles in $3\frac{1}{2}$ hours. Find its average rate.

Solution

Use the formula $d = rt$, where d = distance, r = rate, and t = time.

$$d = rt$$

$$1610 = r13\frac{1}{2} \quad \text{Substitute the values of the variables into the formula.}$$

$$1610 = r1\frac{7}{2} \quad \text{Change } 3\frac{1}{2} \text{ to an improper fraction.}$$

$$16101\frac{2}{7} = r1\frac{7}{2}21\frac{2}{7} \quad \text{Multiply each side by } \frac{2}{7}.$$

$$460 = r$$

The airplane's average rate was 460 mi/h.

Example 2

WEATHER The formula $C = \frac{5}{9}(F - 32)$ relates the Celsius and Fahrenheit temperatures, where C = Celsius temperature and F = Fahrenheit temperature. If the indoor temperature is 25°C , find the temperature in degrees Fahrenheit.

Solution

$$C = \frac{5}{9}(F - 32)$$

$$25 = \frac{5}{9}(F - 32) \quad \text{Substitute.}$$

$$1\frac{9}{5}25 = 1\frac{9}{5}21\frac{5}{9}2(F - 32) \quad \text{Multiply each side by } \frac{9}{5}.$$

$$45 = F - 32$$

$$45 + 32 = F - 32 + 32 \quad \text{Add 32 to each side.}$$

$$77 = F$$

The temperature is 77°F .

Example 3

In the formula for the area of a triangle, $A = \frac{1}{2}bh$, where A = area, b = base, and h = height, solve for h .

Solution

$$A = \frac{1}{2}bh$$

$$2A = 2\left(\frac{1}{2}bh\right) \quad \text{Multiply each side by 2.}$$

$$2A = bh$$

$$\frac{2A}{b} = \frac{bh}{b} \quad \text{Divide each side by } b.$$

$$\frac{2A}{b} = h$$

The new formula indicates that the height of a triangle is found by dividing twice the area by the base.