

Using Formulas

- 1) When you are given a formula, you can substitute for any given information.
- 2) Then, you can solve for the remaining variable.

Ex. 1 $F = mg$ is the formula for the force exerted on a mass (m) by the acceleration due to gravity (g). If the force on an object is $98N$ and the acceleration due to gravity $9.8 \frac{m}{s^2}$, what's the mass of the object?

$$F = mg$$

$$98 = m(9.8)$$

$$\frac{98}{9.8} = \frac{m(9.8)}{9.8}$$

$$10 = m$$

$$10 \text{ kg}$$

You Try 2 $D = rt$ is the formula for the distance an object travels given the rate at which it travels (r) and the amount of time it travels (t). How much time would it take an object traveling at 60mph to go

120mi?

$$D = rt$$

$$\frac{120}{60} = \frac{60t}{60}$$

$$2 = t$$

$$r = 60$$

$$D = 120$$

$$2 \text{ hours}$$

Ex. 3 $A = \frac{1}{2}bh$ gives the area of a triangle according to the lengths of its base (b) and its height (h).

What's the height of a triangle whose base is 4in and area is 12in²?

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

$$12 = \frac{1}{2}(4)h$$

$$12 = \frac{2h}{2}$$

$$12 = 2h$$

$$\frac{12}{2} = \frac{2h}{2}$$

$$6 = h$$

$$6 \text{ inches}$$

Ex. 4 $V = \frac{1}{3}Bh$ gives the volume of a cone according to the area of its base (B) and its height (h). What is the height of a cone that has a base area of 9in and a volume of 15in³?

$$V = \frac{1}{3}Bh$$

$$15 = \frac{1}{3}(9)h$$

$$15 = \frac{3h}{3}$$

$$15 = h$$

$$5 \text{ inches}$$

You Try 5 $A = \frac{1}{2}bh$ gives the area of a triangle according to the lengths of its base (b) and its height (h).

What's the height of a triangle whose base is 4in and area is 12in²?

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

$$12 = \frac{1}{2}(4)h$$

$$12 = \frac{2h}{2}$$

$$12 = 2h$$

$$\frac{12}{2} = \frac{2h}{2}$$

$$6 = h$$

$$6 \text{ inches}$$