

Name: _____ Date: _____ Period: _____

Solving for Missing Variable Word Problems

One useful formula from science says that distance = rate X time. We usually write $d = rt$ to save space.

1. Use the formula $d = rt$ to answer the following questions by solving for the **specified variable** first. Leslie is driving her old Volkswagen Bug to college and she wants to get there in 3 hours to meet her roommate. If her college is 200 miles from home how **fast** will she have to drive?

Another useful formula tells us how the sides of a triangle relate to the area. We use the formula $A = \frac{1}{2}bh$.

2. Pamela wants to plant a triangular garden in her backyard and has 45 square feet of soil to use. She wants the base of her garden to line up against the back of her shed which is 10ft long. What will be the **height** of her garden?
3. Howard is laying triangular tiles in his bathroom the area of each tiles is 6 square inches and the height is 4 inches. What is the **length** of the base of each tile?

Physicists use the formula to the right to calculate the acceleration of an object. Note: v_f stands for the final speed of the object, and v_i stands for the initial or starting speed of the object.

$$a = \frac{v_f - v_i}{t}$$

4. What is Heidi's **final velocity** if she accelerates at 2 feet per second squared for 3 seconds with an initial velocity of 4 feet per second?

The formula for computing the balance of an account with compound interest added annually is $A = P(1 + r)$ where A represents the amount of money in the account including interest, P is the amount in the account before interest and r is the interest rate written as a decimal

5. If Holly wants a total of \$1000 in the bank in a year and has an interest rate of 4% how much money should she put in the bank *initially*?

Practice Problems

Rewrite each equation in terms of the indicated (Letter).

1) $P = IRT$ (T)

2) $P = 2(L + W)$ (W)

3) $y = 5x - 6$ (x)

4) $2x - 3y = 8$ (y)

5) $\frac{x + y}{3} = 5$ (x)

6) $y = mx + b$ (b)

7) $ax + by = c$ (y)

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

9) $V = LWH$ (L)

10) $A = 4\pi r^2$ (r^2)

Name: Answer Key Date: _____ Period: _____

Solving for Missing Variable Word Problems

One useful formula from science says that distance = rate X time. We usually write $d = rt$ to save space.

1. Use the formula $d = rt$ to answer the following questions by solving for the **specified variable** first. Leslie is driving her old Volkswagen Bug to college and she wants to get there in 3 hours to meet her roommate. If her college is 200 miles from home how **fast** will she have to drive?

$$\frac{200}{3} = r \left(\frac{3}{3} \right)$$

$$d = rt$$

$$d = 200 \text{ miles}$$

$$t = 3 \text{ hours}$$

$$r = 66.7 \text{ mph}$$

Another useful formula tells us how the sides of a triangle relate to the area. We use the formula $A = \frac{1}{2} b \cdot h$.

2. Pamela wants to plant a triangular garden in her backyard and has 45 square feet of soil to use. She wants the base of her garden to line up against the back of her shed which is 10ft long. What will be the **height** of her garden?

$$A = 45 \text{ sq ft}$$

$$b = 10 \text{ ft}$$

$$45 = \frac{1}{2} (10) (h)$$

$$45 = 5h$$

$$h = 9 \text{ ft}$$

3. Howard is laying triangular tiles in his bathroom the area of each tiles is .6 square inches and the height is 4 inches. What is the **length** of the base of each tile?

$$.6 = \frac{1}{2} b (4)$$

$$.6 = 2b$$

$$b = 3 \text{ ft}$$

Physicists use the formula to the right to calculate the acceleration of an object. Note: v_f stands for the final speed of the object, and v_i stands for the initial or starting speed of the object.

v_f

$$a = \frac{v_f - v_i}{t}$$

4. What is Heidi's **final velocity** if she accelerates at 2 feet per second squared for 3 seconds with an initial velocity of 4 feet per second?

$$v_f = 10 \text{ ft/s}$$

$$2 = \frac{v_f - 4}{3}$$

$$6 = v_f - 4$$

The formula for computing the balance of an account with compound interest added annually is $A = P(1+r)$ where A represents the amount of money in the account including interest, P is the amount in the account before interest and r is the interest rate written as a decimal

5. If Holly wants a total of \$1000 in the bank in a year and has an interest rate of 4% how much money should she put in the bank initially?

$$A = P(1+r)$$

$$1000 = P(1+.04)$$

$$1000 = 1.04P$$

$$\text{About}$$

$$P = \$961.54$$

Practice Problems

Rewrite each equation in terms of the indicated (Letter).

1) $P = IRT$ (T)

$$T = \frac{P}{IR}$$

2) $\frac{P}{2} = \frac{2(L+W)}{2}$ (W)

$$W = \frac{P}{2} - L$$

3) $y = 5x - 6$ (x)

$$\frac{y+6}{5} = x$$

4) $2x - 3y = 8$ (y)

$$y = \frac{8 - 2x}{-3}$$

5) $\frac{x+y}{3} = 5$ (x)

$$x = 15 - y$$

6) $y = mx + b$ (b)

$$b = y - mx$$

7) $ax + by = c$ (y)

$$y = \frac{c - ax}{b}$$

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

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

9) $V = LWH$ (L)

$$\frac{V}{WH} = L$$

10) $A = 4\pi r^2$ (r)

$$\frac{A}{4\pi} = r^2$$