

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Notes: Literal Equations

A literal equation \_\_\_\_\_

A formula \_\_\_\_\_

*Think About It...*

Solve for  $\triangle$  if

$$\triangle + \bigcirc - \star = \text{pentagon}$$

Solve for  $\bigcirc$  if

$$\frac{\star + \bigcirc}{\triangle} = \text{pentagon}$$

How are the examples above similar to solving equations? \_\_\_\_\_

**Literal Equation Examples – Solve for the appropriate variable.**

1)  $9 + 3x = 2y$  for  $x$

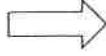
2)  $2a - 0.3b = 10$  for  $a$

3)  $3(y + 12) = 2x$  for  $y$

4)  $k = \frac{1}{2}mv^2$  for  $m$

Solving for word problems for variables in literal equations:

Distance is the product of rate (speed) and time



Distance =

If you ran 8mph for 3 hours,  
how far did you run? \_\_\_\_\_

1. What if you needed to solve for another variable in this equation? Could you calculate your speed if you ran 27 miles for 4.5 hours?

**Let's try!**

- Solve for the distance formula for Rate (Speed).
- Plug in the given information and solve the new equation.

2. In the United States, shoe sizes and foot length are related by the formula  $s = 3f - 24$  where  $s$  represents the shoe size and  $f$  represents the foot length in inches.

- Solve this formula for  $f$ , foot length in terms of  $s$ , shoe size.
- According to this formula, if you wear a size 15 shoe, how long is your foot?

3. The area of a triangle can be found by using the formula:  $A = \frac{bh}{2}$

Answer the following questions:

- If you were given the area and height, solve the formula for the base of the triangle.
- For a triangle with an area of  $96\text{cm}^2$  and a height of  $8\text{cm}$ , calculate the base of the triangle.

4. The United States uses the Fahrenheit system for temperature whereas the United Kingdom uses the Celsius system. The formula  $F = \frac{9}{5}C + 32$  can be used to convert from temperatures in Celsius,  $C$  to Fahrenheit,  $F$ .

- Solve the equation above for  $C$ , degrees Celsius.
- If the average human body temperature is  $98.6^\circ\text{F}$ , what is the equivalent body temperature in  $C$ , degrees Celsius?

# Literal Equations A

Name \_\_\_\_\_

Solve each equation for the indicated variable. Be sure to show all work clearly.

1. Solve for r:  $A = \pi r^2$

2. Solve for t:  $I = prt$

3. Solve for  $\pi$ :  $V = \pi r^2 h$

4. Solve for P:  $A = P(1 + rt)$

5. Solve for d:  $S = 2\pi r^2 + \pi dh$

6. Solve for m:  $y = mx + b$

7. Solve for S:  $n = \frac{S + 360}{180}$

8. Solve for p:  $\frac{p}{b} = \frac{r}{100}$

9. Solve for  $y_1$ :  $y_2 - y_1 = mx$

10. Solve for h:  $A = \frac{1}{2}h(b_1 + b_2)$

11. Solve for r:  $S = 2\pi r^2 + \pi dh$

12. Solve for r:  $V = \frac{1}{3}\pi r^2 h$

13. Solve for a:  $x = b^2 - 4ac$

14. Solve for F:  $C = \frac{5}{9}(F - 32)$

15. Solve for y:  $ax + by = c$

16. Solve for q:  $n^2 = m^2 + 2pq$

17. Solve for a:  $d = \frac{n}{2}(a + 1)$

18. Solve for  $b_1$ :  $A = \frac{1}{2}h(b_1 + b_2)$

Objective: Students will solve for one of the variables in a literal equation in the same way an equation with only one variable would be solved  
Activities by Jill

