

CH.3, L5 – LITERAL EQUATIONS

Objective: Given a literal equation, I will solve by isolating the identified variable using inverse operations.

Think About It: Solve the two equations listed below for the indicated variable:

Solve for "x": $3x - 4 = 8$	Solve for "b": $ab - c = d$
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Explain what was similar and different about solving these equations.

Big Idea:

Partner Practice: (*Low Difficulty*)

1. Solve the following equations for the indicated variable.

a. Solve for n: $3n - w = z$	b. Solve for x: $y = mx + b$	c. Solve a: $\frac{a}{b} + c = df$
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2. Explain the steps that you took in solving part “c” of question 1. Your response should include the inverse operations you used and why.

Partner Practice: (*Medium Difficulty*)

3. The formula for the area of a trapezoid is $A = \frac{1}{2}h(b_1 + b_2)$ where h is the height and b_1 and b_2 are the parallel bases of the trapezoid. Write an equation solved for the length of one of the bases, b_1 or b_2 , of the trapezoid.

4. Given $V = \frac{1}{3}\pi r^2 h$, write an equation that could be used to find the radius of a cone knowing its volume and height.

5. SAT Problem:

A bricklayer uses the formula $n = 7\ell h$ to estimate the number of bricks, n , needed to build a wall that is ℓ feet long and h feet high. Which of the following correctly expresses ℓ in terms of n and h ?

A) $\ell = \frac{7}{nh}$

B) $\ell = \frac{h}{7n}$

C) $\ell = \frac{n}{7h}$

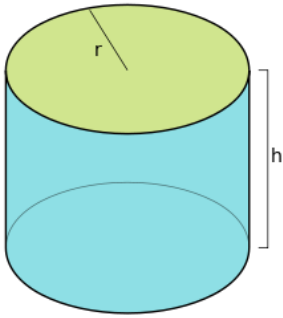
D) $\ell = \frac{n}{7+h}$

6. The equation for the area of a sector of a circle (which you will learn next year!) is as follows: $A = \frac{\pi r^2 S}{360}$. Solve the equation for S , which is the angle measurement, using only one step.

7. Given the Pythagorean theorem $a^2 + b^2 = c^2$ where a and b are the legs and c is the hypotenuse of a right triangle, write an equation that could be used to determine the length of one of the legs of the triangle in terms of the other two sides.

8. Solve the equation for "g": $\frac{1}{2}g + rt = q$

9. Given the equation $V = \pi r^2 h$, use it to write an equation in terms of the radius of the figure given the volume.



Partner Practice: (*Hard Difficulty*)

10. Solve the following equation for "a": $Q = 3a + 5ac$

11. Explain what additional step was needed to successfully isolate a.

12. Write an equation in terms of r for the formula for a geometric series $S_n = \frac{a_1 - a_1 r^n}{1 - r}$