Warm-Up

Go to:

www.yellkey.com/kitchen

If you were absent on Friday and missed the quiz, please grab a seat at the front of the classroom so you can take it.

Homework Check

Worksheet

Had the answers at the bottom.

How do we feel about it?

Looking ahead...

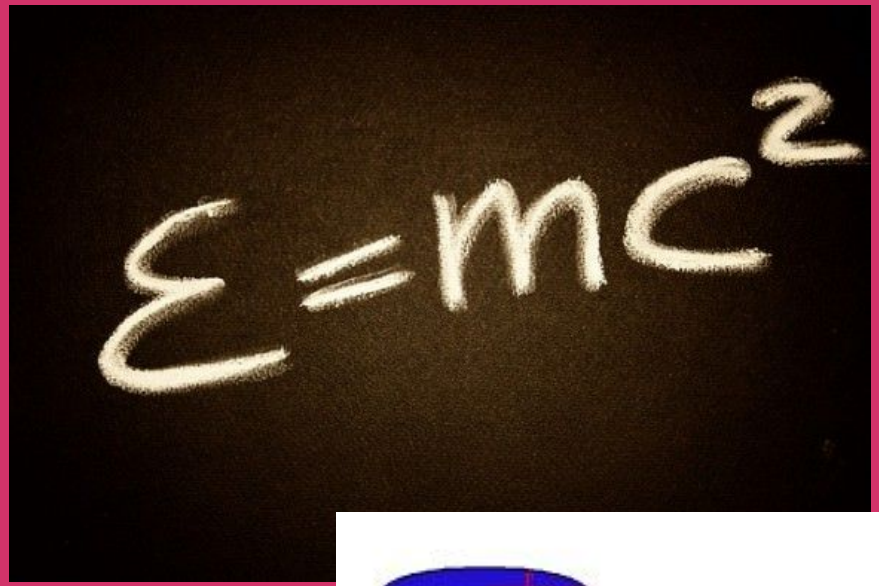
Today → 9/24 Literal Equations (Day 1)
Tuesday → 9/25 Literal Equations (Day 2)
Wednesday → 9/26 MAPs Testing
Thursday → 9/27 Word Problems
Friday → 9/28 Unit 2 Review Day
Monday → 10/1 Unit 2 Test

Solving Literal Equations Day 1

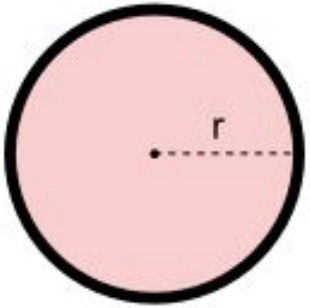
September 24, 2018

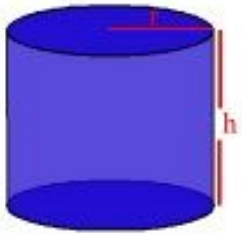
A literal equation is...

Equations with multiple variables where you are asked to solve for one specific variable. (Often used in geometry and science).



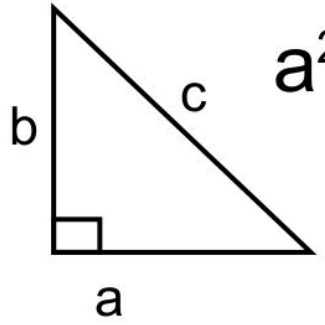
$$area = \pi r^2$$





$$V = \pi r^2 h$$

Pythagorean Theorem



$$a^2 + b^2 = c^2$$

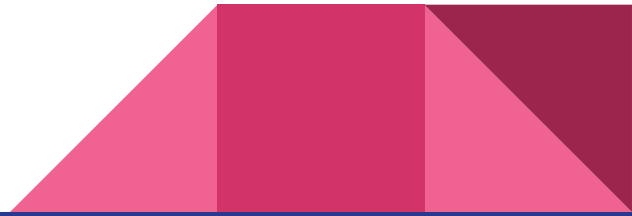
We know that the area of a rectangle is represented by $A=lw$

Could we rearrange the formula so that given the area and the width, we could find the length?

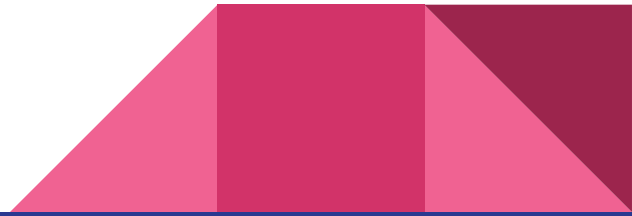
Why would this be helpful???

Likewise we can use the properties of equality that we have learned and apply them to any equation with multiple variables!

We'll work on some examples today.



Let’s see what your textbook tells us about literal equations...



Problem 1 Rewriting a Literal Equation

The equation $10x + 5y = 80$, where x is the number of pizzas and y is the number of sandwiches, models the problem in the Solve It. How many sandwiches can you buy if you buy 3 pizzas? 6 pizzas?

Step 1 Solve the equation $10x + 5y = 80$ for y.

$$10x + 5y = 80$$

$10x + 5y - 10x = 80 - 10x$ Subtract $10x$ from each side.

$5y = 80 - 10x$ Simplify.

$\frac{5y}{5} = \frac{80 - 10x}{5}$ Divide each side by 5.

$y = 16 - 2x$ Simplify.

Step 2 Use the rewritten equation to find y when $x = 3$ and when $x = 6$.

$y = 16 - 2x$		$y = 16 - 2x$
$y = 16 - 2(3)$	Substitute for x.	$y = 16 - 2(6)$
$y = 10$	Simplify.	$y = 4$

If you buy 3 pizzas, you can buy 10 sandwiches. If you buy 6 pizzas, you can buy 4 sandwiches.

Solve each equation for y. Then find the value of y for each value of x.

11. $y + 2x = 5; x = -1, 0, 3$

12. $2y + 4x = 8; x = -2, 1, 3$

Problem 2 Rewriting a Literal Equation With Only Variables

What equation do you get when you solve $ax - bx = c$ for x?

$$ax - bx = c$$

$$x(a - b) = c$$ Distributive Property

$$\frac{x(a - b)}{a - b} = \frac{c}{a - b}$$ Divide each side by $a - b$, where $a - b \neq 0$.

$$x = \frac{c}{a - b}$$ Simplify.

Solve each equation for x.

19. $mx + nx = p$

20. $ax - x = c$

21. $\frac{rx + sx}{t} = 1$

Check for Understanding → Try these individually or with your table group. Ask if you have questions!

Solve each equation for the given variable.

1. $-2x + 5y = 12$ for y

2. $a - 2b = -10$ for b

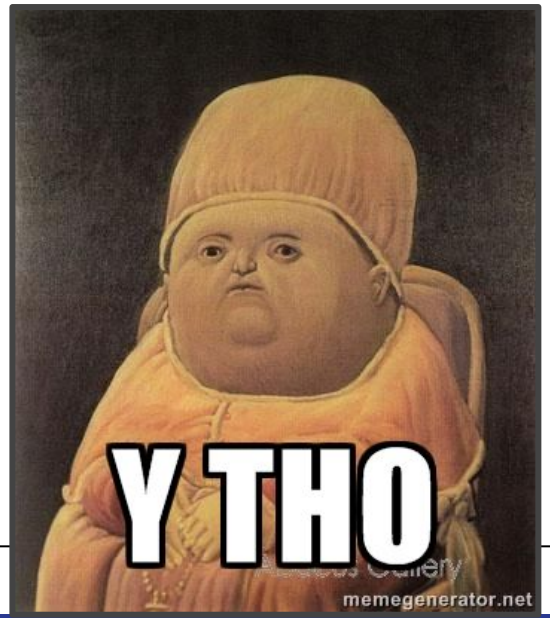
3. $mx + 2nx = p$ for x

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

5. Gardening Jonah is planting a rectangular garden. The perimeter of the garden is 120 yd, and the width is 20 yd. What is the length of the garden?

Exit ticket:

Why is solving a literal equation helpful? What's the point?



Homework

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