

Lesson 1.5.1: Using Formulas

Warm Up:

Complete the table for the given equation.

$$y = 3x + 2$$

x	y
0	
1	
2	
3	

What is a formula?

Here is a definition:

A formula is a special type of equation that shows the relationship between different variables.

Here is a list of some popular formulas. See if you can name them...

Formula	Name of Formula	What do we use it to find?
$m = \frac{y_2 - y_1}{x_2 - x_1}$		
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$		
$E = mc^2$		
$a^2 + b^2 = c^2$		

Using Formulas

- 1.) If a person's mass is 70 kg, what is their energy?
- 2.) Find the x intercepts for the following equation: $3x^2 + 2x - 5 = 0$
- 3.) If the two legs of a right triangle are 5 and 12, what is the length of the hypotenuse?
- 4.) What is the slope of a line that contains the points (3, 7) and (5, 10)?

Rearranging Formulas

- 1.) Rearrange the formula $E = mc^2$ so that it is a formula for mass.
- 2.) Rearrange slope intercept form ($y = mx + b$) so that it is a formula for m .
- 3.) Rearrange the formula $P = 2(w + l)$ to be a formula for width.

Khan Activity:

"Manipulating Formulas" or "Solving Equations in Terms of a Variable"

Exit Ticket

- 1.) Explain why formulas are useful.
- 2.) A very famous formula is $d = st$ which means "distance is equal to speed multiplied by time."
 - a.) If you drive at a speed of 45 mph for 90 minutes, what distance will you travel?
 - b.) What if you drive 68.5 mph for 300 minutes?
- 3.) Rearrange the distance formula ($d = st$) so that it is a formula for time.
- 4.) If you run 8 mph for a total of 3 miles, how long were you running?