How do you find or approximate the point of intersection of two lines without using a graph?

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In this lesson you will learn to find the x-coordinate of the intersection of two equations by making a table.

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Let's Review

A solution is a value or set of values that make an equation true.

$y = 2x$

$x=2, y=4$ TRUE!

$x=4, y=8$ TRUE!

$x=6\ y=12$ TRUE!

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Let's Review

A solution to a system of equations is a value that makes both equations true.

$(-1, -3)$

$y = -x - 4$

$-3 = -(-1) - 4$

$-3 = -3$ ✓

$y = 2x - 1$

$-3 = 2(-1) - 1$

$-3 = -2 - 1$

$-3 = -3$ ✓

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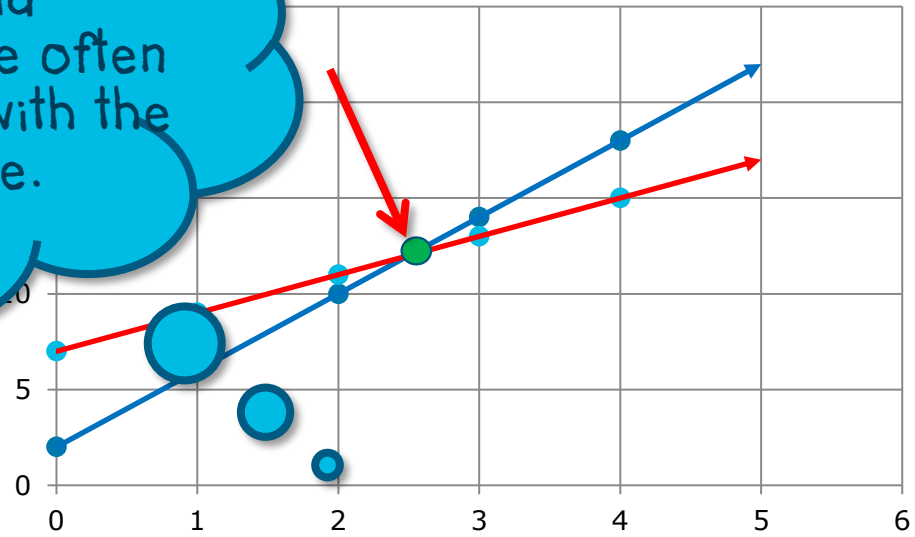
Let's Review

The point where two lines intersect is a solution to both equations.

In real world problems, we are often only concerned with the x-coordinate.



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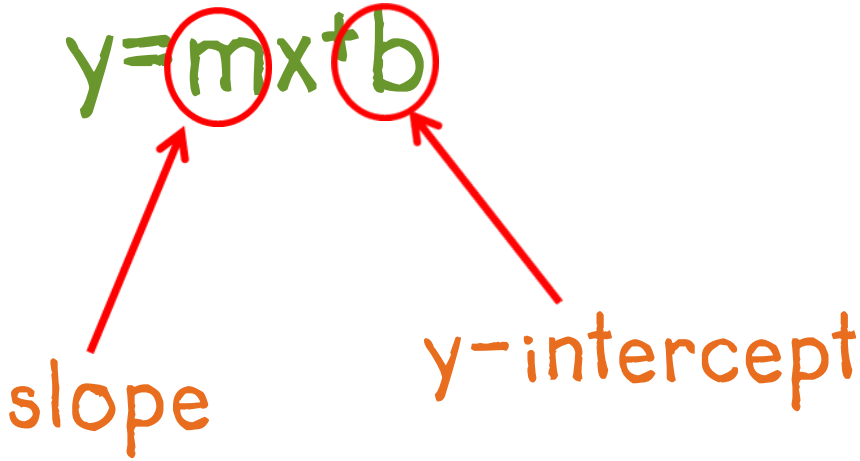
Let's Review

slope-intercept form



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A Common Misunderstanding

Remember that in real-world problems, the slope of the equation is the amount that describes the rate of change, and the y-intercept is the amount that represents the initial value.

$$y=mx+b$$

y-intercept

A limo company charges a flat rate of $50 plus an additional charge of $25 per hour.

slope

$y=\$50x+\$25$ ✗ No!

$y=\$25x+\$50$ ✓ Yes!

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We need to write 2 equations!

slope

First we can identify our slope and y-intercept.

...ese pizza at Par...
$6.80 plus $0.90 for ...

The cost of a large cheese pi... ...s Pizza is $7.30 plus $0.65 for each topping.

How many toppings need to be added to a large cheese pizza from Paradise and Geno's in order for the pizzas to cost the same, not including tax?

y-intercept

slope

Paradise $y = .90x + 6.80$

Geno's $y = .65x + 7.30$

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Core Lesson

Now we make a chart to organize our data!

x + 6.80 Ge

toppings; y=total

We need two charts for two equations!

x	y=.90 + 6.80	y
0	y=.90(0) + 6.80	6.80
1	y=.90(10 + 6.80	7.70
2	y=.90(2) + 6.80	8.60

x	y=.65x + 7.30	y
0	y=.65(0) + 7.30	7.30
1	y=.65(1) + 7.30	7.95
2	y=.65(2) + 7.30	8.60

After adding two toppings, the pizzas will cost the same!

The pizzas cost the same!

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In this lesson you have learned to find the x-coordinate of the intersection of two equations by making a table.

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