

Welcome Back

Honors Algebra 2



Syllabus

Remind

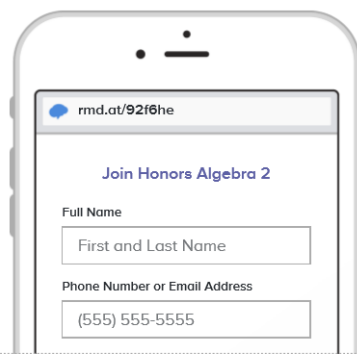
Google Classroom

A If you have a smartphone, get push notifications.

On your iPhone or Android phone, open your web browser and go to the following link:

rmd.at/92f6he

Follow the instructions to sign up for Remind. You'll be prompted to download the mobile app.



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* Standard text message rates apply.



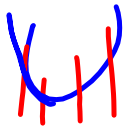
10|288x

Notebook setup

8/7 Linear Equations

Functions

$$f(x) = x^2$$



x is not repeated

Pass
the vertical
line test

$y = 2x + 3$
a, b, c
standard form

Linear Equations

a, b, c equal $y_2 - y_1 = m(x_2 - x_1)$

$$y = \underline{mx + b}$$

can't have exponent
higher than 1

graph is
a line

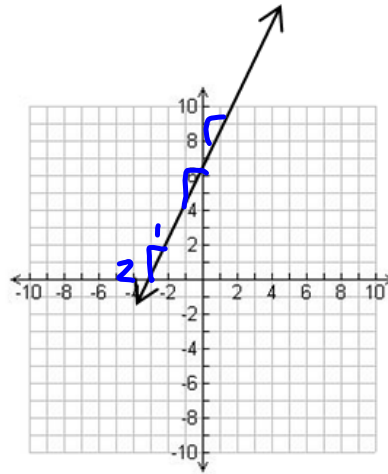
~~$xy = 5$~~
not linear

Linear equations
are functions because:

- * The graph passes the vertical line test
- * X is not repeated

<u>x</u>	<u>y</u>
-1	5
0	7
1	9
2	11

+1 < > +2
 +1 < > +2
 +1 < > +2



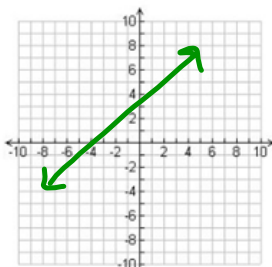
$$m = \frac{2}{1} = 2$$

The slope has a

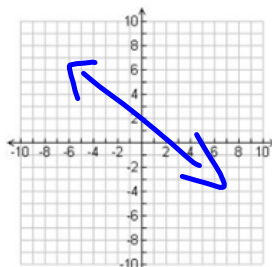
Constant rate of change

The slope is constant
 no matter where you
 look on the graph.

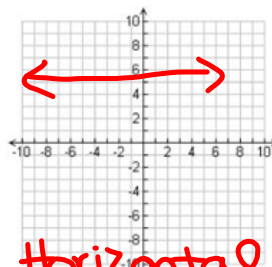
$$\text{Slope } (m) = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$



Positive Slope

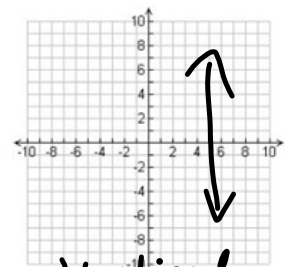


negative slope



Horizontal
 $y = \#$

Slope = zero



Vertical
 $x = \#$

Slope = undefined

not a function

Standard form $ax + by = c$

"a" can't be negative
no fractions or decimals
divide by the common factor

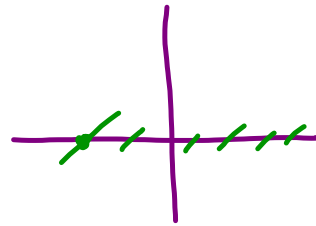
Point-Slope form $y_2 - y_1 = m(x_2 - x_1)$

Slope & a point

Slope intercept form $y = mx + b$

$m =$ slope $b =$ y-intercept

x-intercept Where the graph crosses the X-axis. To find: plug zero in for y



y-intercept Where the graph crosses the y-axis
To find: plug zero in for x

What methods can we use to graph a linear eq.?

1. find x & y intercepts
2. Calculator
3. $y = mx + b$
4. T-chart

x	y

To find the equation of a line given two points:

(3,4) (5, -1)

$$\frac{y-y_1}{x-x_1} = \frac{-1-4}{5-3} = \frac{-5}{2}$$

$$y-y_1 = m(x-x_1)$$

$$y-4 = \frac{-5}{2}(x-3)$$

$$y-4 = \frac{-5}{2}x + \frac{15}{2}$$

+4

$$\boxed{y = \frac{-5}{2}x + \frac{23}{2}}$$

$$\left(\frac{5}{2}x + y = \frac{23}{2}\right)^2$$

$$\boxed{5x + 2y = 23}$$

find Slope
 $m = \frac{-5}{2}$

plug one point & slope in
 to pt-slope form

Simplify & Solve for y
 for slope-intercept form

To write in Standard
 form: x & y on the same
 side

Multiply by the common
 denom. to get rid of fractions.

$(-2,5)$ $(6,8)$

Find the value of x or y so that the line through the points has the given slope.

$(8, 1)$ and $(x, 3)$; slope: undefined

$$\frac{y-y}{x-x} = \frac{3-1}{x-8} = \text{undefined} \quad \boxed{x=8}$$

Write the slope-intercept form of the equation of the line described.

through: $(-3, 4)$, parallel to $y = -\frac{4}{3}x - 2$

$$m = -\frac{4}{3}$$

$$m = -\frac{4}{3}$$

$$y - y = m(x - x)$$

$$y - 4 = -\frac{4}{3}(x + 3)$$

$$y - 4 = -\frac{4}{3}x - \frac{12}{3}$$

$$y - 4 = -\frac{4}{3}x - 4$$

$$y = -\frac{4}{3}x$$

Write the slope-intercept form of the equation of the line described.

through: $(-3, 2)$, perp. to $x = 0$

$$m = 0$$

$$y - y = m(x - x)$$

$$y - 2 = 0(x - -3)$$

$$y - 2 = 0$$

$$\boxed{y = 2}$$

