# Welcome Back

Honors Algebra 2

Syllabus

Remind

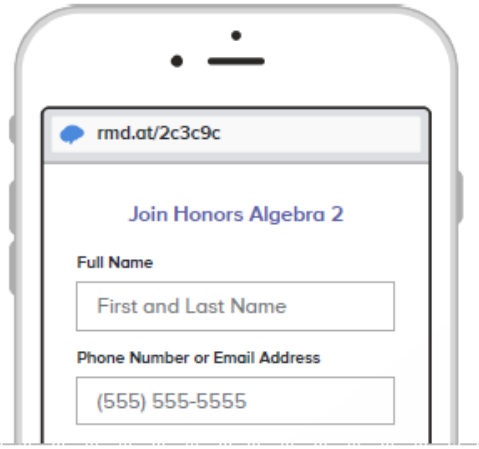
Pick a way to receive messages for **Honors Algebra 2**:

**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/2c3c9c

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




**B** If you don't have a smartphone, get text notifications.

Text the message @2c3c9c to the number 81010.

If you're having trouble with 81010, try texting @2c3c9c to (864) 761-4212.

** Standard text message rates apply.*


**Don't have a mobile phone?** Go to rmd.at/2c3c9c on a desktop computer to sign up for email notifications.

# Notebook setup

# Linear Review 8/8

input → output

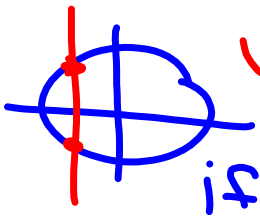
Linears
Slope +/−
$y = mx + b$

# Functions

x-int
y-int

x | y

x can NOT be repeated



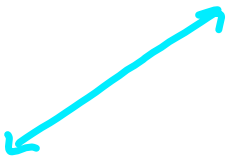
Vertical line test

if a vert. line goes through the graph more than once = NOT a function

# Linear Equations

Linear equations

are functions because:

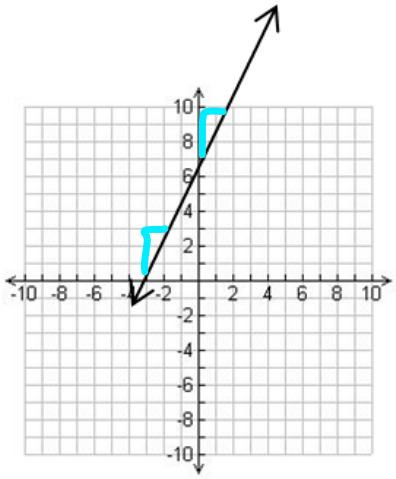


* passes the vertical line test
* x is not repeated in the table of values

| x | y |
|---|---|
| -1 | 5 |
| 0 | 7 |
| 1 | 9 |
| 2 | 11 |

+1 → +2, +1 → +2, +1 → +2

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

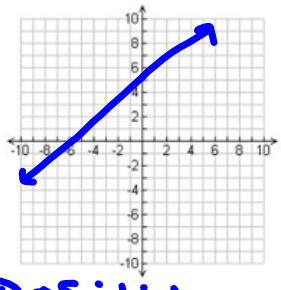


**The slope is** Constant

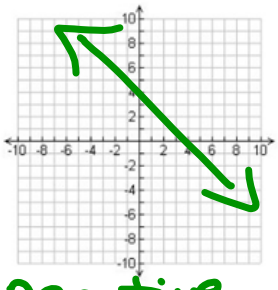
**no matter where you look on the graph.**

**The slope has a** constant rate of change

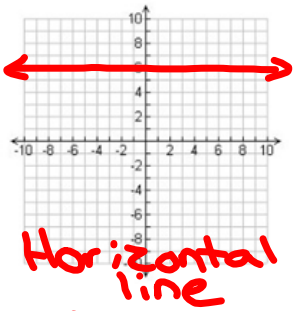
**Slope (m) =** $\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$



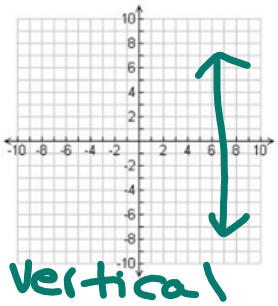
Positive Slope



Negative Slope



Horizontal line
y = #
Slope = 0



Vertical line
x = #
Slope = undefined

**Standard form** $Ax+By=C$

* A must be positive
* no fractions or decimals
* divide out common factors $(10x+2y=12) \div 2$ $5x+y=6$

**Point-Slope form** $y-y=m(x-x)$

* plug in one point & the slope

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

**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. $y=mx+b$
2. calculator
3. from a t-chart $\begin{array}{c|c} x & y \\ \hline & \\ & \end{array}$
4. x & y-intercepts

**To find the equation of a line given two points:**

(3, 4) (5, -1)

$\frac{y_2-y_1}{x_2-x_1} = \frac{-1-4}{5-3} = \frac{-5}{2}$

find the slope

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

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

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

- Plug into point-slope
- distribute

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

$+4$

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

- get y by itself

Slope-intercept form

$+\frac{5}{2}x \quad +\frac{5}{2}x$

$\frac{5}{2}x+y=\frac{23}{2}$ $\times \frac{2}{1}$

to put in Standard form:
Move "x" over to "y"

$5x+2y=23$

Standard form

to get rid of fractions, multiply everything by the common denominator

Parallel Lines = Same Slope

Perpendicular lines = opposite reciprocal slopes

(-2,5) (6,8)

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

$y = mx + b$

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

$(-3, 4)$ $m = -\frac{4}{3}$

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

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

$y - 4 = -\frac{4}{3}x - \frac{12}{3} + 4$ $(-12/3) + 4$

$y = -\frac{4}{3}x + 0$

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

$x = 4$

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

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