Algebra 1 4.1

Write and graph linear equations in "slope-intercept form."

$y = mx + B$

Model data with equations in slope-intercept form

linear

m slope $\frac{\text{rise}}{\text{run}}$ → Slope

B y-intercept y-int

y=mx+b

constant function

Song

Whiteboards

$y = mx + B$

Example 2 Graph Linear Equations

Graph $3x + 2y = 6$.

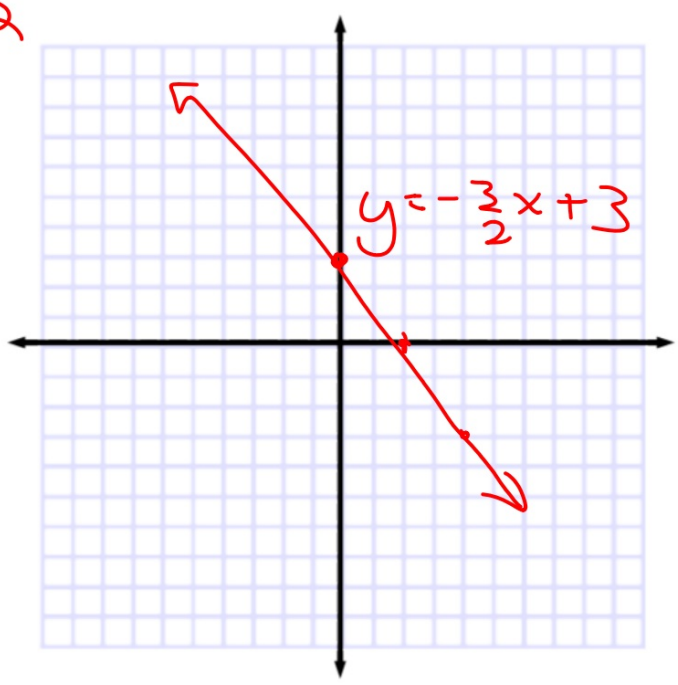
Find slope and y-int
Hint: y=mx+b

$-3x \quad -3x$

$2y = 6 - 3x$

$\frac{2y}{2} = \frac{-3x}{2} + \frac{6}{2}$

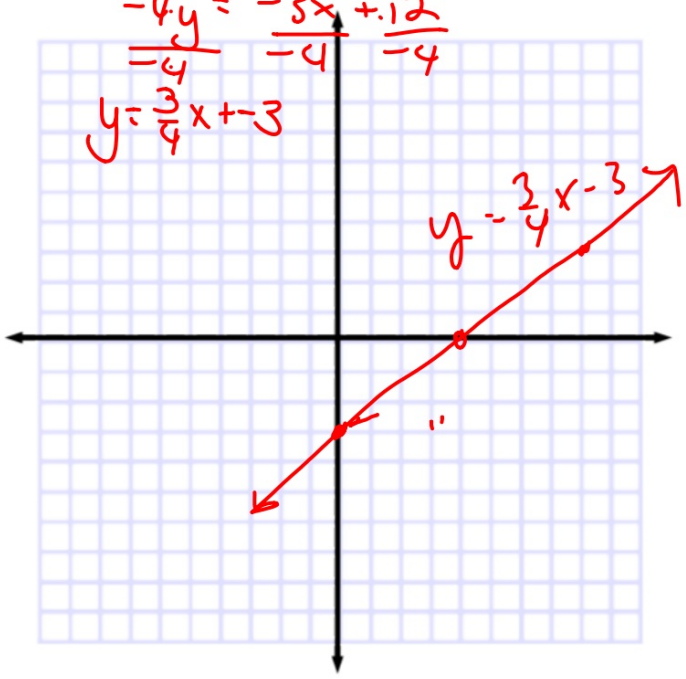
$y = -\frac{3}{2}x + 3$



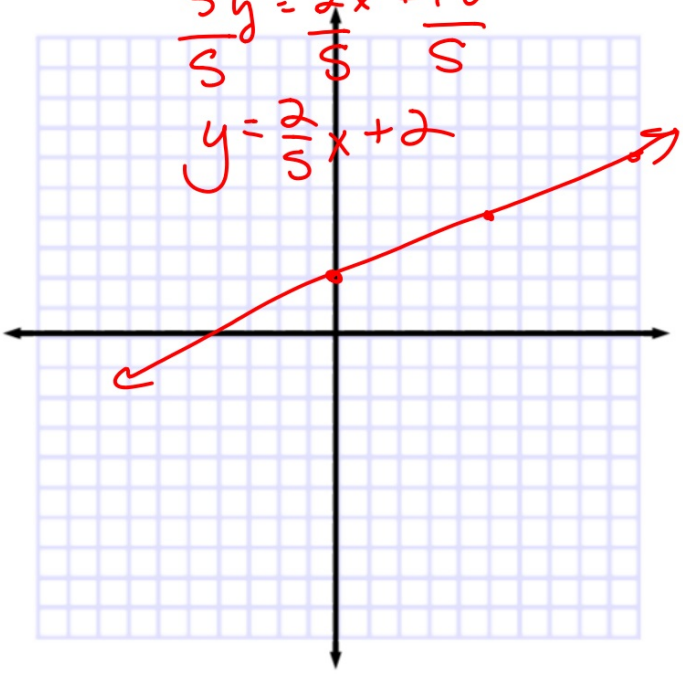
GuidedPractice

Graph each equation.

2A. $3x - 4y = 12$



2B. $-2x + 5y = 10$

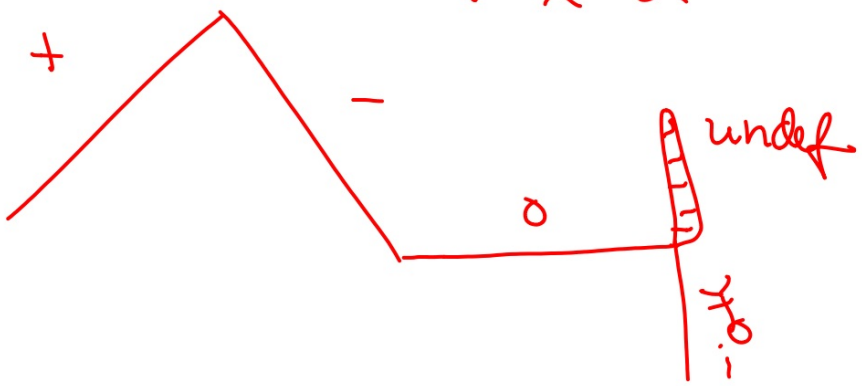


$y = 0x + 3$

H $y = 3$

V $x = 2$

Can he ride...
- up hill?
- down hill?
- horizontally?
- up a vertical wall?



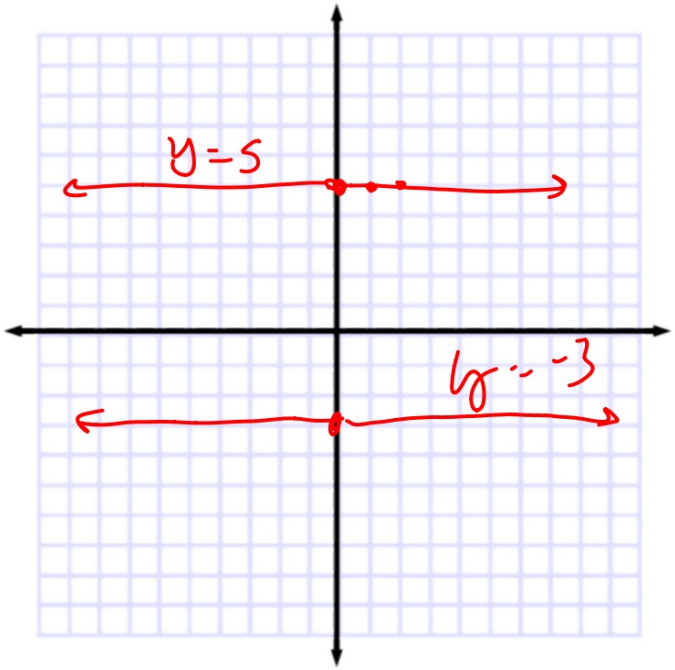
$y = 0x + -3$

Example 3 Graph Linear Equations

Graph $y = -3$.

$y = 5$

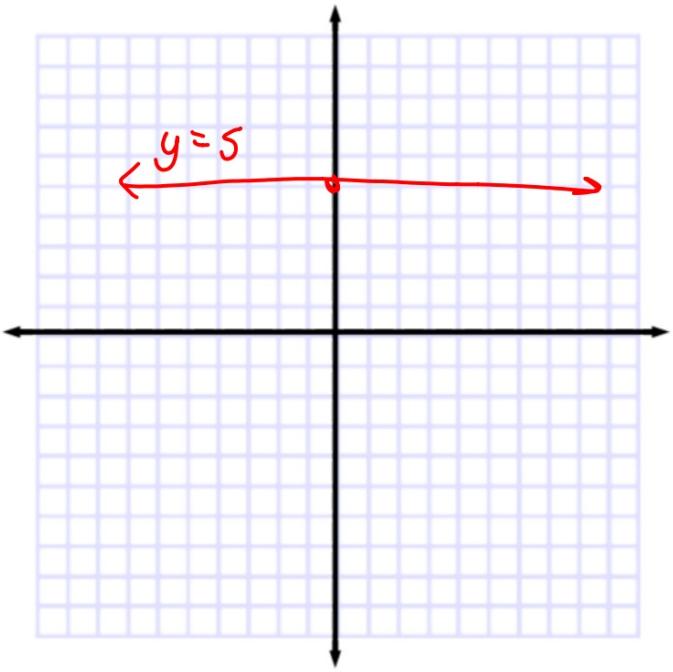
Bicycles: constant slope
y = constant describes vertical distance (x,y)
so y= 2 would be always "up 2" etc.



GuidedPractice

Graph each equation.

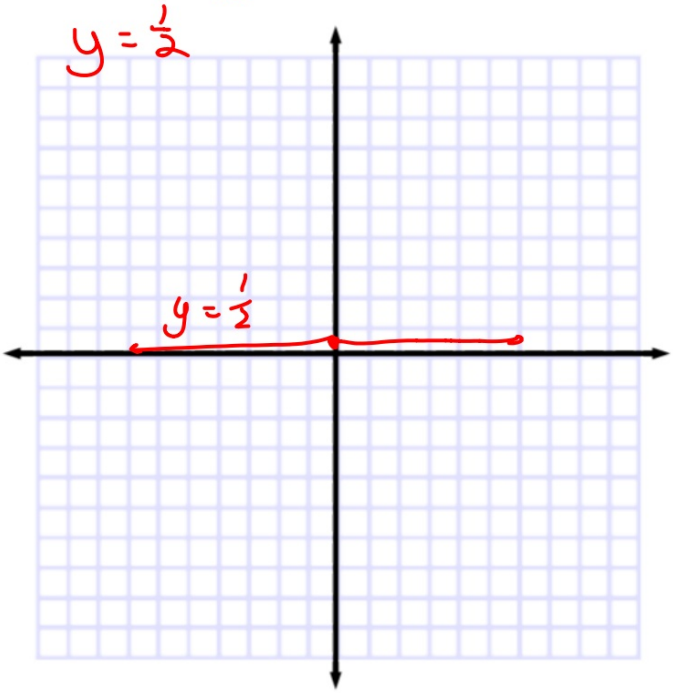
3A. $y = 5$



3B. $2y = 1$

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

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

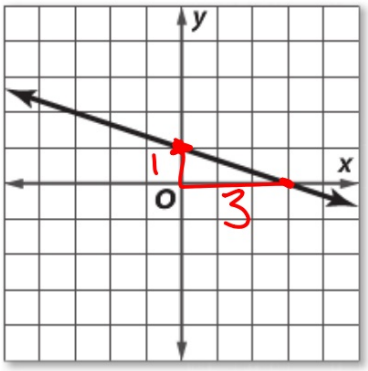


What do we need to know?

$y = mx + B$

Standardized Test Example 4 Write an Equation in Slope-Intercept Form

Which of the following is an equation in slope-intercept form for the line shown?



A $y = -3x + 1$

B ~~$y = -3x + 3$~~

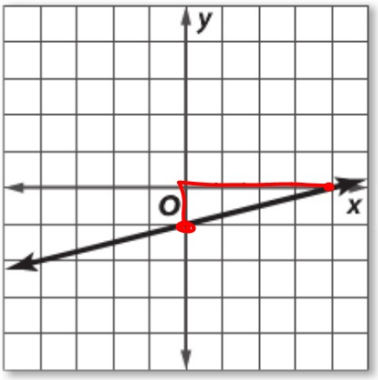
C $y = -\frac{1}{3}x + 1$

D ~~$y = -\frac{1}{3}x + 3$~~

$y = mx + B$

GuidedPractice

4. Which of the following is an equation in slope-intercept form for the line shown?



F $y = \frac{1}{4}x - 1$

G $y = \frac{1}{4}x + 4$

H $y = 4x - 1$

J $y = 4x + 4$

$x = 3$

$x = -6$