

# Find and Use Slopes of Lines Guided Notes: STUDENT EDITION

## Writing Equations of Lines

$$y = mx + b$$

### Writing an equation of a line given m and b.

1. Write down  $y = mx + b$ .
2. Substitute slope for m and y-intercept for b.
3. Simplify the equation.

Ex. 1: Slope is -5 and y-intercept is 2.

Ex. 2: Slope is  $-1/2$  and y-intercept is -2.

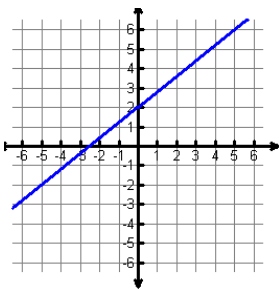
Ex. 3: Slope is 0 and y-intercept is 3.

Ex. 4: Slope is  $1/3$  and y-intercept is 0.

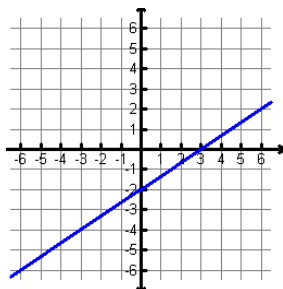
### Writing an equation of a line given a graph.

1. Write down  $y = mx + b$ .
2. Use any 2 "good" points on the graph to find the slope, m.
3. Find the y-intercept on the graph, b.
4. Substitute slope for m and y-intercept for b into the equation  $y = mx + b$ .

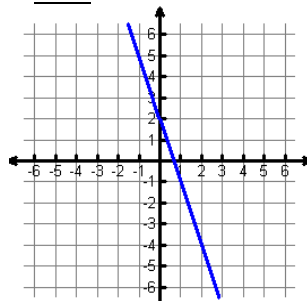
Ex. 5:



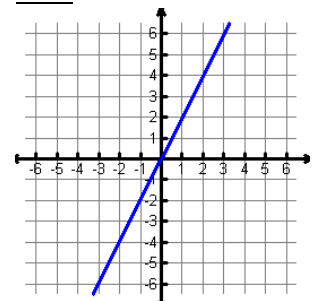
Ex. 6:



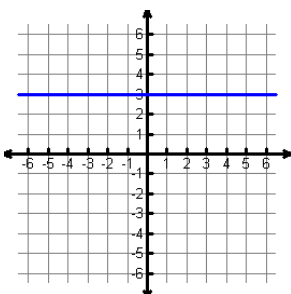
Ex. 7:



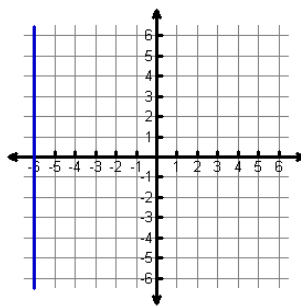
Ex. 8:



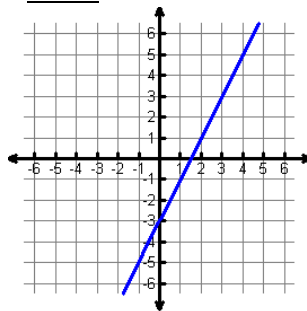
Ex. 9:



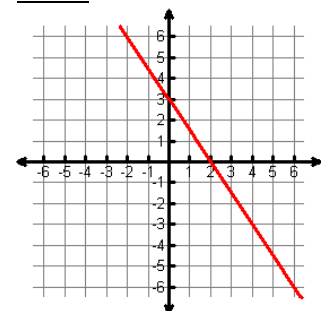
Ex. 10:



Ex. 11:



Ex. 12:



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## **Writing an equation of a line given m and a point.**

1. Write down  $y = mx + b$ .
2. Substitute slope for  $m$  and the point  $(x, y)$ .
3. Solve for  $b$ .
4. Substitute  $m$  and  $b$  back into the equation.

Ex. 13:  $m = 2$  and Point:  $(2, 3)$

Ex. 14:  $m = 1/2$  and Point:  $(4, -3)$

Ex. 15:  $m = -2$  and Point:  $(-5, 3)$

Ex. 16:  $m = 4$  and Point  $(1, 4)$

Ex. 17:  $m = 1/2$  and Point:  $(-1, -2)$

Ex. 18:  $m = 2$  and Point  $(0, 3)$

Ex. 19:  $m = 3$  and Point:  $(3, 0)$

Ex. 20:  $m = \text{undefined}$  and Point  $(3, 6)$

## **Writing an equation of a line given TWO points.**

1. Write down  $y = mx + b$ .
2. Use the slope formula to find  $m$ .
3. Pick one of the ordered pairs and substitute slope for  $m$  and the point  $(x, y)$ .
4. Solve for  $b$ .
5. Substitute  $m$  and  $b$  back into the equation.

Ex. 21: Points:  $(2, 3)$  and  $(4, 5)$

Ex. 22: Points:  $(2, 3)$  and  $(-4, 15)$

Ex. 23: Points:  $(2, 2)$  and  $(0, 4)$

Ex. 24: Points:  $(2, 3)$  and  $(1, 4)$

Ex. 25: Points  $(4, 5)$  and  $(5, 2)$