

# Teaching Notes for Algebra I

## Homework #10

Overview: In this lesson, students will be finding slope, equations for lines, and x and y intercepts.

Preparation: Watch video on “finding slope,” “equations of lines,” and “x and y intercepts.”

Classroom Examples:

- 1) Find the equation of the line that has a slope of  $\frac{3}{4}$  and goes through the point  $(-3,5)$ .

$$y = mx + b$$

$$5 = \frac{3(-3)}{4} + b$$

$$5 = \frac{-9}{4} + b$$

$$\frac{29}{4} = b \quad y = \frac{3}{4}x + \frac{29}{4}$$

- 2) Find the equation of the line that is perpendicular to the line  $2x - 5y = 20$  and goes through the point  $(4,-1)$ .

$$(4,-1) \quad m = \frac{-5}{2}$$

$$y = mx + b$$

$$2x - 5y = 20$$

$$-5y = -2x + 20$$

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

$$-1 = \frac{-5(4)}{2} + b$$

$$-1 = -10 + b$$

$$9 = b \quad y = \frac{-5}{2}x + 9$$

- 3) Find the x and y intercepts for the equation  $-6x - 10y = 12$

\*worked out in video

- 4) Find the slope of the line that goes through the points  $(-6,6)$  and  $(-4,-8)$

\*worked out in video

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- 5) Find the equation of the line that goes through the points  $(-8,1)$  and  $(-8,-4)$

\*worked out in video

- 6) Find the equation of the line that is parallel to the line  $5x + 2y = -10$  and goes through the point  $(2,-7)$

$$(2,-7) \quad m = \frac{-5}{2}$$

$$y = mx + b$$

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

$$2y = -5x - 10$$

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

$$-7 = \frac{-5(2)}{2} + b$$

$$-7 = -5 + b$$

$$-2 = b \quad y = \frac{-5}{2}x - 2$$