

**Math 05, Homework 6 on Sections 5.2 - 5.3**  
**Hand in by Tue, Mar 15 at the start of class.**

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Write all your working out and answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first ten questions are 2 points each and **the answers are on page 2.**

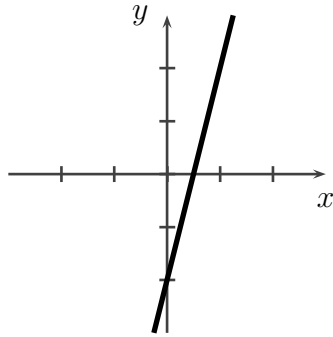
- (1) Graph the line:  $y = 4x - 2$
  - (2) Is the point  $(2, 3)$  on the line  $y = 2x - 1$ ?
  - (3) Find the slope of the line between the two points:  $(-2, 3)$  and  $(1, 3)$
  - (4) Find the slope and  $y$ -intercept of the line:  $4x + 3y = 2$
  - (5) Show that the two lines  $y = -2x + 1$  and  $y = \frac{1}{2}x + 3$  are perpendicular.
  - (6) Find the equation of the vertical line through the point:  $(-2, 3)$
  - (7) Find the slope-intercept equation of the line through the point  $(-1, 1)$  with slope 6.
  - (8) Find the slope-intercept equation of the line through the points:  $(3, 2)$  and  $(2, 1)$
  - (9) Is  $(x, y) = (3, -2)$  a solution to  $3x + y \leq 10$  ?
  - (10) Graph the solution set to the inequality  $x - y \leq 2$ .
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These next eight questions are 2 points each. Show clearly all your working out and reasoning.

- (11) Graph the line:  $3x + y = 3$
- (12) Find the slope of the line between the two points:  $(-1, 1)$  and  $(2, -1)$
- (13) Find the slope and  $y$ -intercept of the line:  $5x + 6y = 12$
- (14) Show that the two lines  $x + 2y = 3$  and  $x + 2y = 4$  are parallel.
- (15) Find the equation of the horizontal line through the point:  $(7, 3)$
- (16) Find the slope-intercept equation of the line through the point  $(-2, -1)$  with slope 2.
- (17) Find the slope-intercept equation of the line through the points:  $(3, 2)$  and  $(1, -2)$
- (18) Graph the solution set to the inequality  $-x + 2y \geq 4$ .

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Answers to questions (1)-(10):



(1)

(2) Yes

(3) The slope is 0.

(4) The slope of the line is  $-\frac{4}{3}$  and the  $y$ -intercept is  $(0, 2/3)$ .

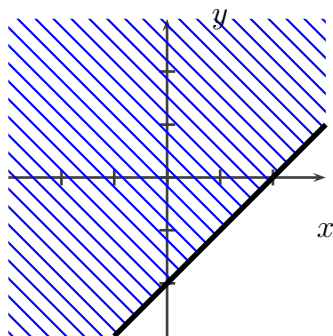
(5) The slope of the first line is  $-2$  and the slope of the second line is  $\frac{1}{2}$ . The lines are perpendicular since these numbers are negative reciprocals of each other. (Another way to check they are perpendicular is to see that the product  $(-2)(\frac{1}{2})$  equals  $-1$ .)

(6) The vertical line through  $(-2, 3)$  has equation  $x = -2$ .

(7)  $y = 6x + 7$

(8)  $y = x - 1$

(9) Yes it is a solution



(10)