

Name: \_\_\_\_\_ / 16

No aids (calculator, notes, text, etc.) are permitted. Show all work for full credit and box your final answer.

## 1. [2 points]

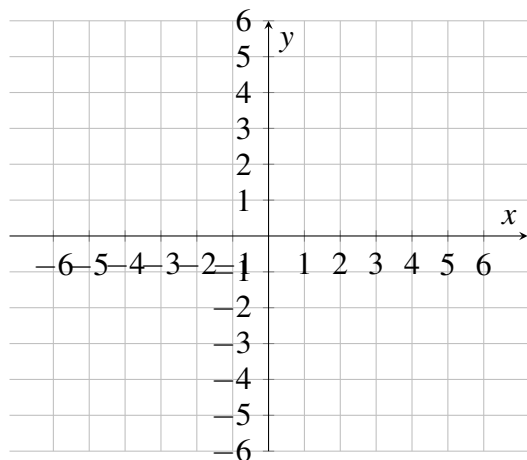
- a. Complete the statement: Two nonvertical lines with slopes  $m_1$  and  $m_2$  are **parallel** if and only if
- b. Complete the statement: Two nonvertical lines with slopes  $m_1$  and  $m_2$  are **perpendicular** if and only if

## 2. [4 points]

- a. Find the equation, in **slope-intercept form**, for the line **parallel** to the given line  $6x + 2y = 19$  and passing through the point  $(-6, -13)$ .
- b. Determine if two lines  $x - 5y = 2$  and  $5x - y = 2$  are **perpendicular**.

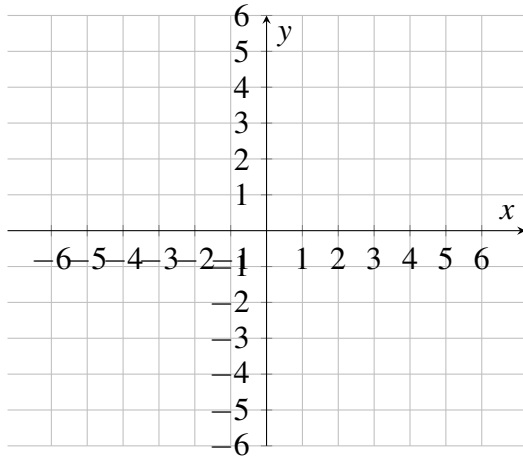
## 3. [2 points] Graph the solution set that satisfies the following inequalities:

$$2x - 3y \geq -2$$



4. [2 points] Graph the solution set that satisfies the following absolute value inequality:

$$|x - 3| > 2$$



5. [2 points]

a. Determine if the relation  $R = \{(-2, 5), (2, 4), (-2, 3), (3, -9)\}$  is a function. **Fully** explain your answer (you may use a Vertical Line Test).

b. Determine if the relation  $y = 2x + 1$  is a function. **Fully** explain your answer (you may use a Vertical Line Test).

6. [4 points] You are given a function

$$f : \mathbb{Z} \rightarrow \mathbb{Z} \quad \text{by} \quad f(x) = 3x$$

Find:

- (a) Domain of  $f$ :
- (b) Codomain of  $f$ :
- (c) Range of  $f$ :

7. [Extra Credit, 4 points] Use the graph of the function  $f$  to answer the following questions:

- $f(0) =$
- $f(3) =$
- $f(-1) =$

