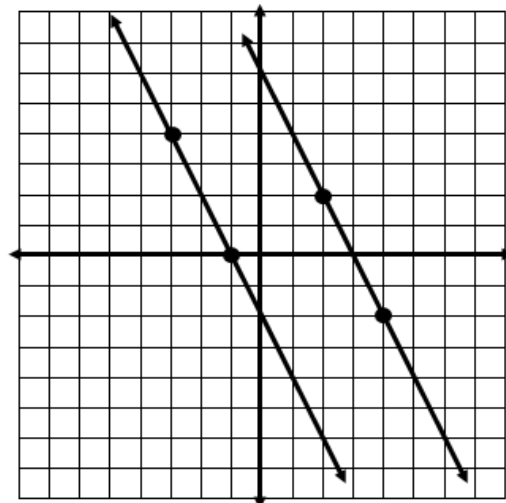


#### 4.4 Parallel and Perpendicular Lines

##### Slopes of Parallel Lines -

- If two nonvertical lines are parallel, then their slopes are \_\_\_\_\_.
- If the slopes of two distinct nonvertical lines are \_\_\_\_\_, then the lines are \_\_\_\_\_.
- Any two \_\_\_\_\_ lines are parallel.



Example 1 - Are the lines  $y = -\frac{1}{2}x + 5$  and  $2x + 4y = 9$  parallel?

Write an equation in slope intercept form for the line parallel to  $y = -4x + 3$  that contains the point  $(1, -2)$ .

Write an equation of a line that is parallel to  $y = 7$  and goes through  $(2,3)$ .

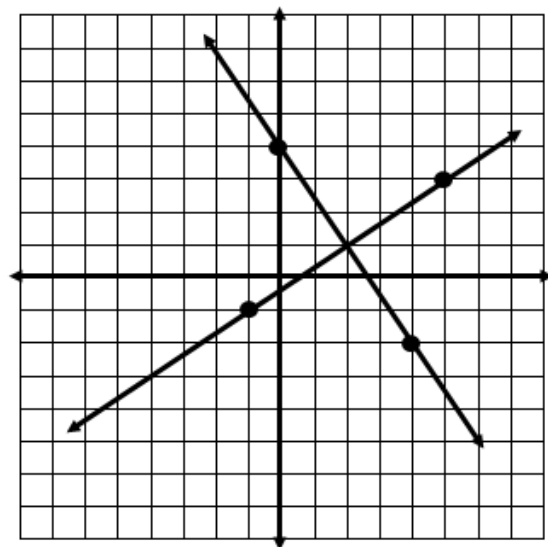
### Slopes of Perpendicular Lines -

- If two nonvertical lines are perpendicular, then the product of their slopes is \_\_\_\_\_

- In other words, their slopes are \_\_\_\_\_.

- If the slopes of two lines have a product of \_\_\_\_\_, then the lines are \_\_\_\_\_.

- Any \_\_\_\_\_ line is perpendicular to any \_\_\_\_\_ line.



- Two perpendicular lines will always form a \_\_\_\_\_.

Example 2 - Write an equation in slope-intercept form for the line through  $(-3, 7)$  and perpendicular to  $y = -3x - 5$ .

Write an equation in slope-intercept form for a line perpendicular to  $5x + 2y = 1$  and contains the point  $(10, 0)$ .

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