

# 6.3 Write Equations of Parallel and Perpendicular Lines

## NOTES

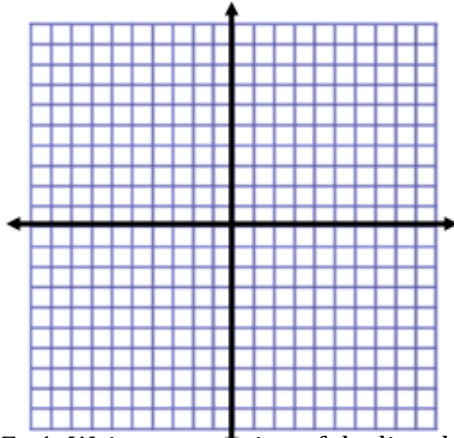
Write your questions here!



Parallel:

$$y = 2x - 5$$

$$y = 2x + 4$$

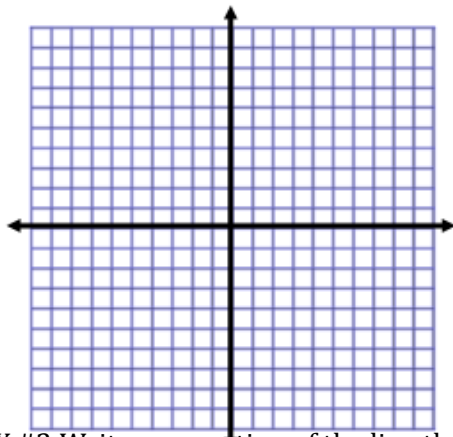


Ex 1: Write an equation of the line that passes through the point (4, 7) and is parallel to the line  $y = 5x - 3$ .

Perpendicular:

$$y = -2x + 5$$

$$y = \frac{1}{2}x - 2$$



EX #2: Write an equation of the line that passes through (6, -1) and is perpendicular to  $y = 3x + 2$ .

Line a:  $y = -2x + 5$

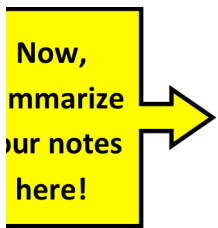
Line b:  $2y - x = 3$

Line c:  $2x + y = 1$

TRY THIS!

Find the equation of a line that is perpendicular to  $4y + 2x = 12$  and goes through the point  $(8, -1)$

### SUMMARY:



## 6.3 Write Equations of Parallel and Perpendicular Lines

## PRACTICE

Write an equation of the line that passes through the given point and is parallel to the given line.

1)  $(5, -1)$ ,  $y = -\frac{3}{5}x - 3$

2)  $(1, 7)$ ,  $-6x + y = -1$

3)  $(-2, 5)$ ,  $2y = 4x - 6$

4)  $(-10, 0)$ ,  $-y + 3x = 16$

5) Determine which lines, if any, are parallel or perpendicular.  
 Line a:  $y = \frac{3}{5}x + 1$   
 Line b:  $5y = 3x - 2$   
 Line c:  $10x - 6y = -4$

6) Determine which lines, if any, are parallel or perpendicular.  
 Line a:  $4x - 3y = 2$   
 Line b:  $3x + 4y = -1$   
 Line c:  $4y - 3x = 20$

Directions: Write an equation of the line that passes through the given point and is perpendicular to the given line.

7)  $(-9, 2)$ ,  $y = 3x - 12$

8)  $(7, 10)$ ,  $y = .5x - 9$

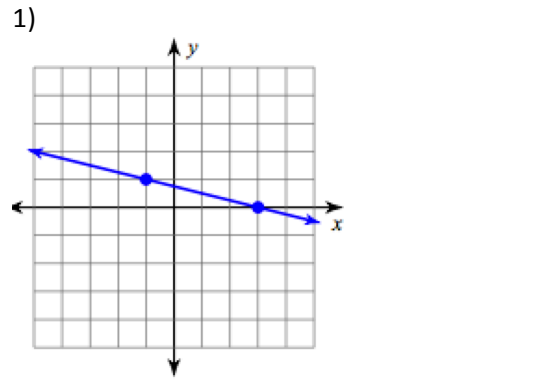
9)  $(-4, -1)$ ,  $y = \frac{4}{3}x + 6$

**SKILLZ REVIEW**

Find the slope of the line.

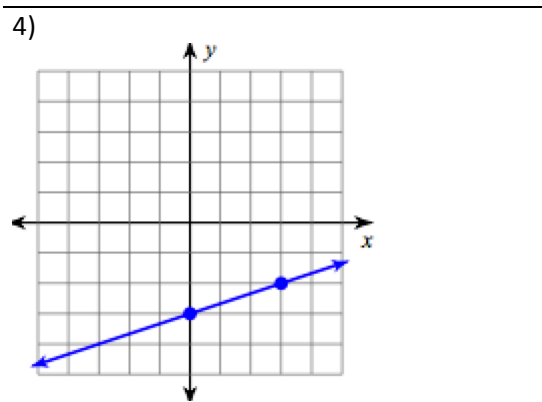
Simplify.

Solve.



2)  $10 - 3(2 - n)$

3)  $3 - 3c = 24$



5)  $7(g - 4) + 6$

6)  $5 = \frac{x}{10} + 6$

## 6.3 Write Equations of Parallel and Perpendicular Lines

# APPLICATION

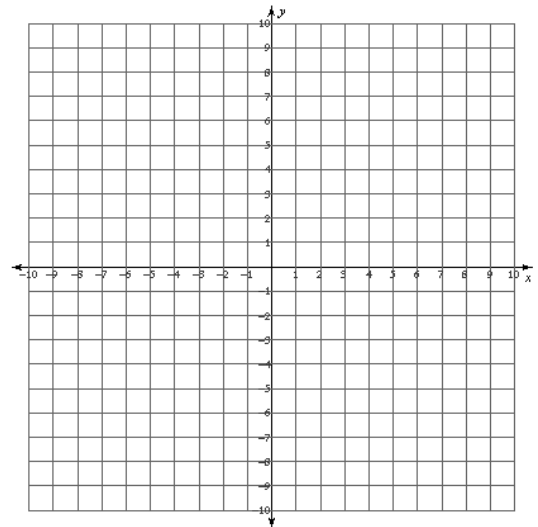
1) Write an equation of the line that passes through the point  $(-1, 3)$  and is parallel to  $y = 2x + 2$ .

2) Write an equation of the line that passes through  $(-5, 2)$  and is perpendicular to  $y + 3 = 2x$ .

3) Graph the line  $y = \frac{3}{2}x - 5$ .

4) What is the slope of any line parallel to the line in #3?

5) Write the equation in slope-intercept form of a line parallel to the line in #3 and that goes through the point  $(-2, 5)$ . Graph it.



6) What is the slope of any line perpendicular to the line in #3?

7) Write the equation in slope-intercept form of a line perpendicular to the line in #3 and that goes through the point  $(3, 6)$ . Graph it.

8) Write the equation in slope-intercept form of a line perpendicular to the line in #3 and that goes through the point  $(-3, -3)$ . Graph it.

9) What shape is formed on your graph?