

Writing Equations of Lines- Answer the following questions below.

1. What kind of line has a slope equal to 0? Horizontal
2. What is the slope of a line that is vertical? Undefined
3. What is the slope of the line $x = 3$? undefined
4. What is the equation of the line with a slope equal to 0 and passes through the point $(-9, 7)$? $y = 7$
5. Find the slope of the line that passes through the points $(3, -4)$ and $(5, 1)$.
 $m = \frac{5}{2}$
6. Write the equation of the line in slope-intercept form that passes through the points $(3, -2)$ and $(3, 4)$.
 $x = 3$
7. Write the equation of the line in point-slope form that passes through the points $(5, -2)$ and $(3, 1)$.
 $y + 2 = \frac{-3}{2}(x - 5)$ or $y - 1 = \frac{-3}{2}(x - 3)$
8. Change $y = \frac{2}{3}x - \frac{1}{6}$ to Standard Form.
 $4x - 6y = 1$
9. Write the equation of the line in Standard Form that has a slope equal to 4 and passes through the point $(0, -9)$.
 $4x - y = 9$

10. Find the slope, point-slope form, slope-intercept form, y-intercept, Standard Form, and the x - intercept for the line that passes through the points (4, -1) and (1, -2).

Slope $\frac{1}{3}$
 $y + 1 = \frac{1}{3}(x - 4)$
 or

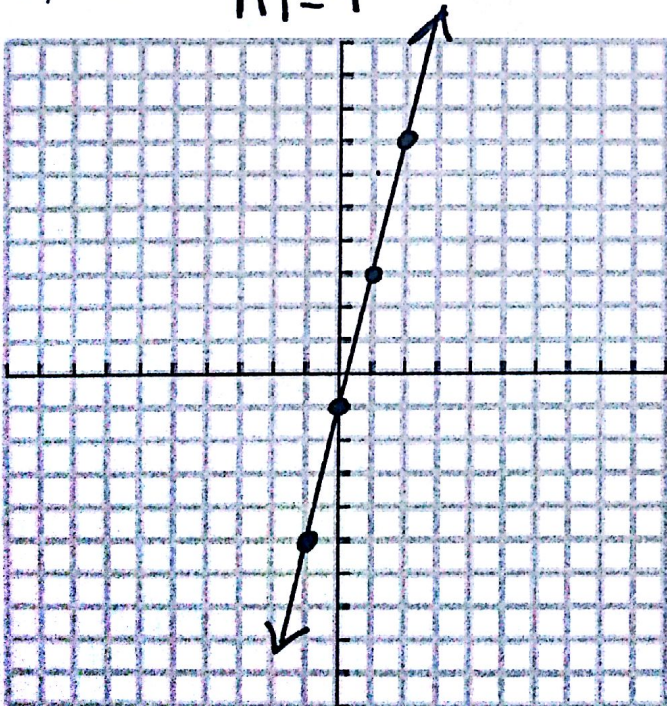
Point - slope form $y + 2 = \frac{1}{3}(x - 1)$

Slope - intercept form $y = \frac{1}{3}x - \frac{7}{3}$

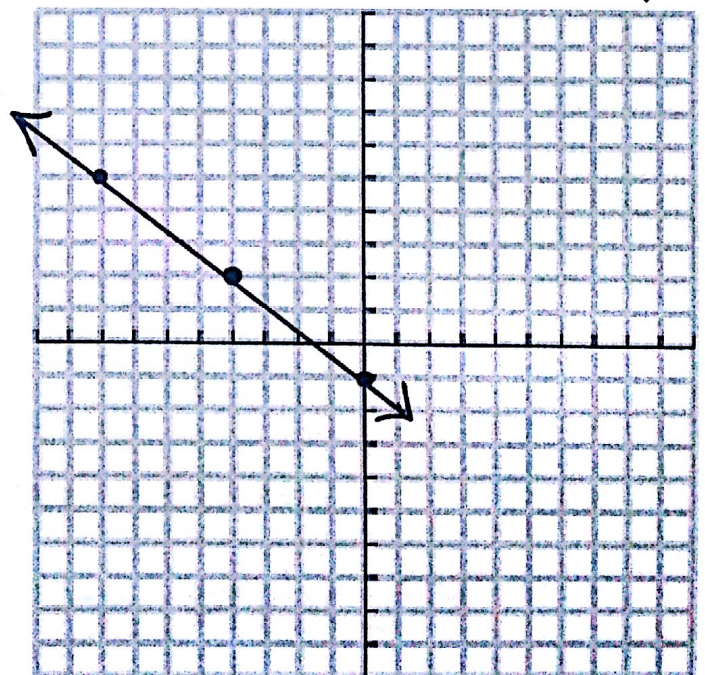
Standard Form $x - 3y = 7$

Graph the equations. y-int. = -1

11. $y = 4x - 1$ $m = 4$



12. $y - 2 = -\frac{3}{4}(x + 4)$ Point (-4, 2)
 Slope = $-\frac{3}{4}$



Parallel and Perpendicular Lines- Write an equation for each of the following conditions.

13. Find the slope of the line that is parallel to $y - 4 = 0$.

$$m = 0$$

14. Parallel to $y = 5x - 2$, through $(2, -1)$

$$y + 1 = 5(x - 2)$$

15. Perpendicular to $y = -3x + 7$, through $(3, 5)$

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

16. Parallel to $9x - y = 0$, through $(0, -5)$

$$y = 9x - 5 \quad \text{or} \quad y + 5 = 9(x - 0)$$

17. Perpendicular to $8x - y = 1$, through $(4, 10)$

$$y - 10 = -\frac{1}{8}(x - 4) \quad \text{or} \quad y = -\frac{1}{8}x + \frac{21}{2}$$

Parallel and Perpendicular Lines- Decide if the lines are parallel, perpendicular, or neither.

18. $2x - 5y = 15$ and $2x + 5y = 10$

$$m = \frac{2}{5}$$

$$m = -\frac{2}{5}$$

neither

19. $2x + y = 2$ and $2x + y = 5$

$$m = -2$$

$$m = -2$$

parallel

20. $y = \frac{x}{3} - 4$ and $y = \frac{1}{3}x + 2$

parallel

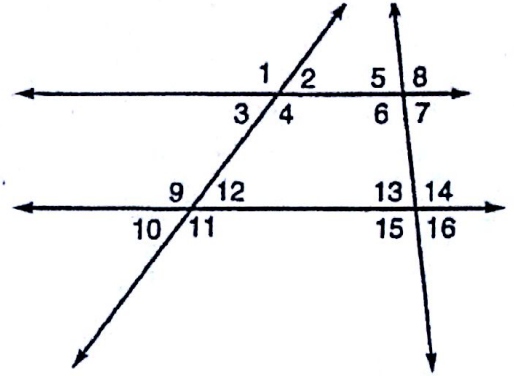
21. $y = x + 5$ and $y = -x + 5$

perpendicular

Parallel Lines → same as "same side int. ∠'s"

Identify each pair of angles as alternate interior, alternate exterior, corresponding, consecutive interior or vertical angles.

- 1) $\angle 9$ and $\angle 11$ vertical ∠'s
- 2) $\angle 3$ and $\angle 9$ same-side int. ∠'s
- 3) $\angle 3$ and $\angle 12$ alt. int. ∠'s
- 4) $\angle 8$ and $\angle 6$ vertical ∠'s
- 5) $\angle 8$ and $\angle 15$ alt. ext. ∠'s
- 6) $\angle 4$ and $\angle 5$ alt. int. ∠'s
- 7) $\angle 1$ and $\angle 7$ alt. ext. ∠'s



Exercises 1-7

Find the value of x and y .

