

p.175
#1-25

1. The slope of a nonvertical line is the ratio of vertical change (rise) to the horizontal change (run) between any two points on the line.

2. Slope is 0; slope is undefined.

3. D 4. A 5. B

6. C 7. $\frac{1}{2}$ 8. -2

9. 0 10. $-\frac{5}{2}$

11. Slope was computed using $\frac{\text{run}}{\text{rise}}$, it should be $\frac{\text{rise}}{\text{run}}$, $m = \frac{3}{4}$

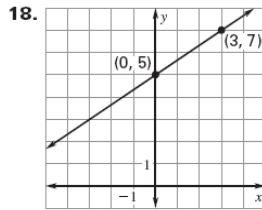
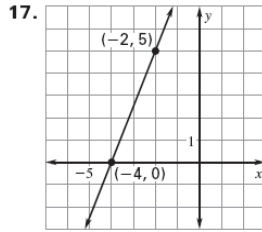
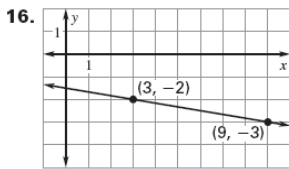
12. x_2 and x_1 were interchanged;

$$\frac{7-5}{2-4} = \frac{2}{-2} = -1.$$

13. Perpendicular; the product of their slopes is -1 .

14. Neither; the slopes are not equal and their product is not -1 .

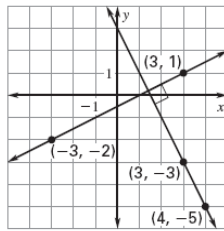
15. Perpendicular; the product of their slopes is -1 .



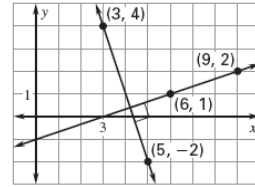
19. line 2 20. line 1 21. line 1

22. Find the slopes and compare them. The one that has a larger absolute value is steeper.

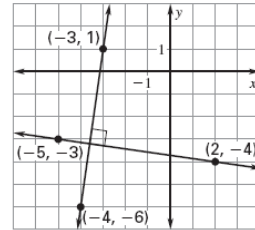
23. -2;



24. $\frac{1}{3}$;



25. 7;



Warm Up

1. What is the slope of the line containing (2, 7) and (6, 1)?

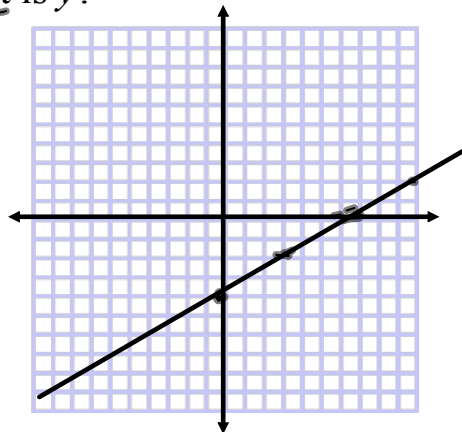
-3

2. If $2x + 5y = -20$ and $x = 0$, what is y ?

-4

3. Graph: $y = \frac{2}{3}x - 4$

this is run
this is rise

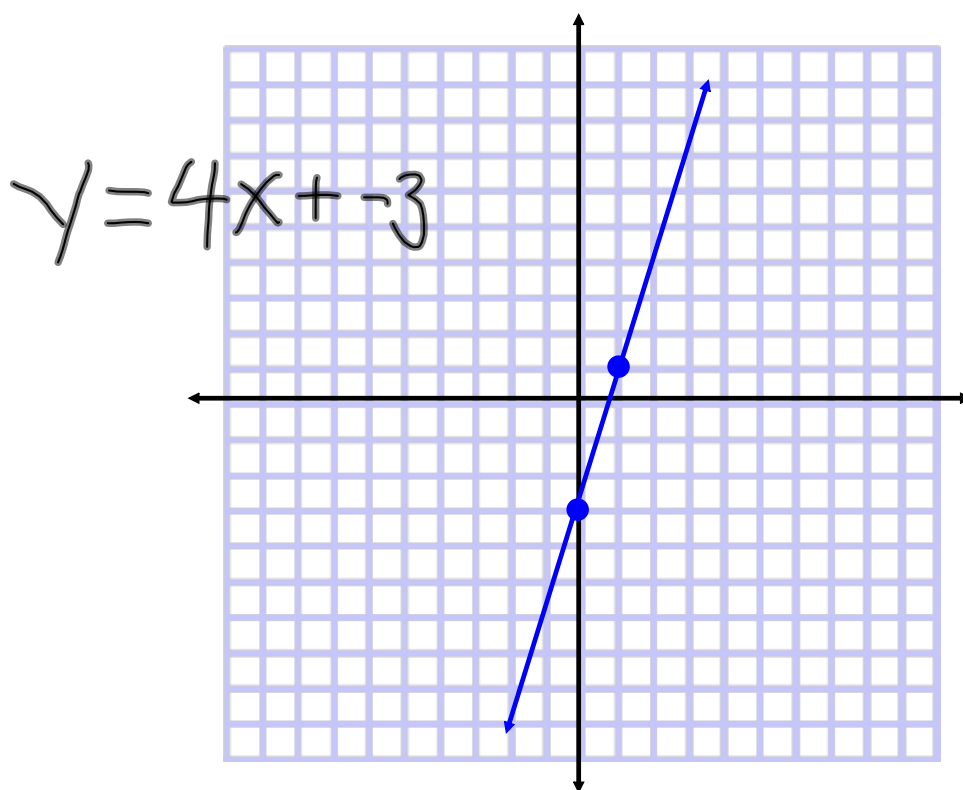


3-5 Equations of Lines

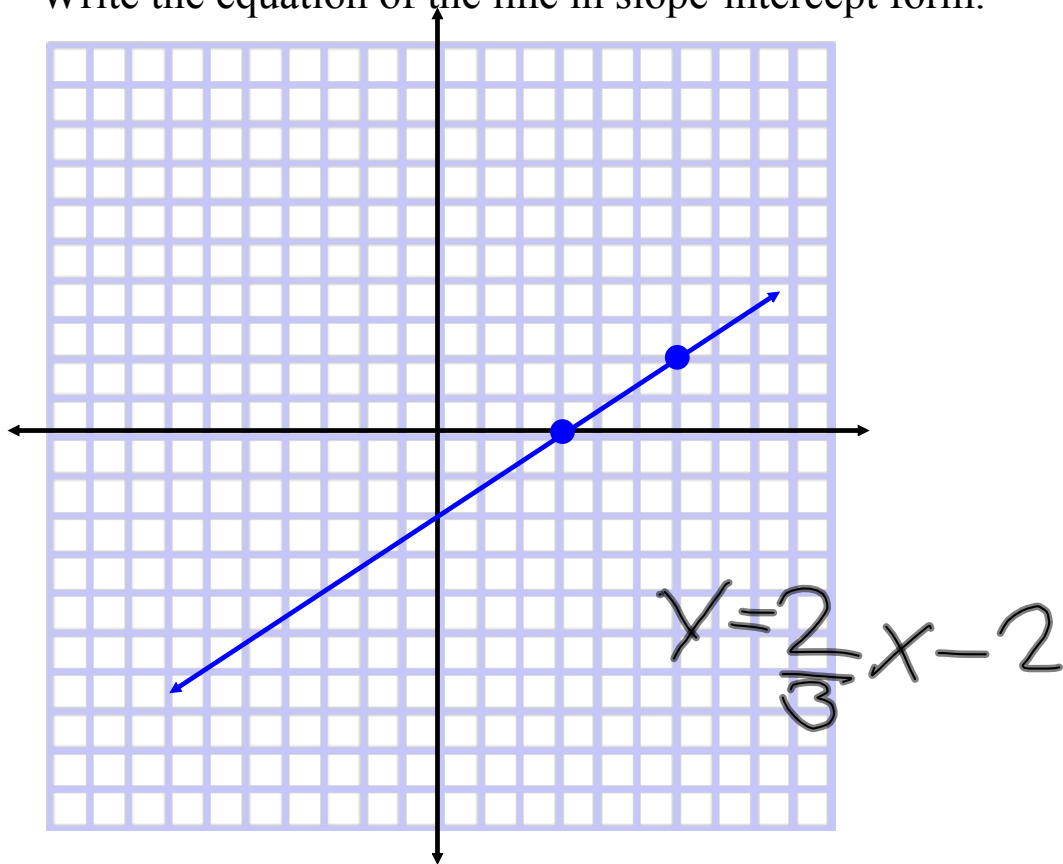
slope-intercept form $y = mx + b$

standard form $ax + by = c$
no fractions

Ex 1 Write the equation of the line in slope-intercept form.



Ex 2 Write the equation of the line in slope-intercept form.



Ex 3 Write the equation of the line passing through the point (2, -3) that is parallel to the line $y = 6x + 4$

$$y = mx + b$$

$$y = 6x - 15$$

$$-3 = 6 \cdot 2 + b$$

$$\begin{array}{r} -3 = 12 + b \\ -12 \quad -12 \\ \hline -15 \end{array}$$

Ex 4 Write the equation of the line passing through the point (4, 3) that is parallel to the line $y = \frac{1}{2}x - 9$

$$y = mx + b$$

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

$$3 = \frac{1}{2} \cdot 4 + b$$

$$3 = 2 + b$$

$$1 = b$$



Ex 5 Write the equation of the line passing through (3, -4) that is perpendicular to the line ~~$y = \frac{1}{2}x - 1$~~

Opposite reciprocal slope

$$m = 2$$

$$y = mx + b$$

$$-4 = 2 \cdot 3 + b$$

$$-4 = 6 + b$$

$$-10 = b$$

$$y = 2x - 10$$



Ex 6 Write the equation of the line passing through (2, 5) that is perpendicular to the line $y = \frac{2}{3}x + 11$

$$y = mx + b$$

$$5 = -\frac{3}{2} \cdot 2 + b$$

$$5 = -3 + b$$

$$8 = b$$

$$y = -\frac{3}{2}x + 8$$

$$m = -\frac{3}{2}$$



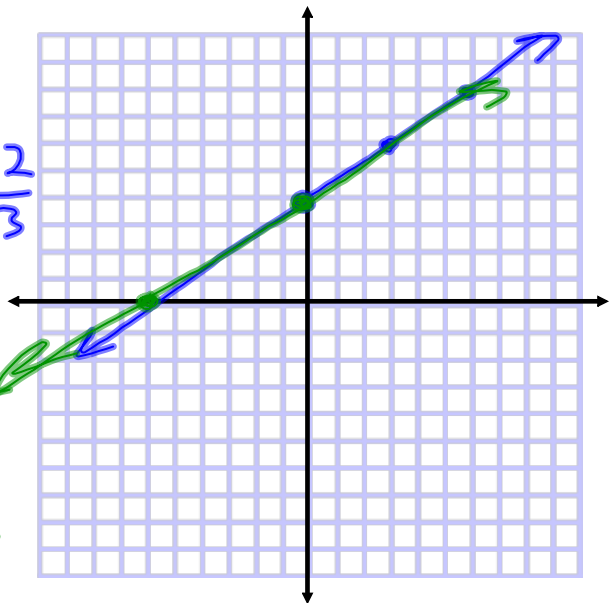
Ex 7 Graph: $2x - 3y = -12$

$$\frac{-2x}{-3} = \frac{-2x - 12}{-3}$$

$$-3y = -2x - 12$$

$$y = \frac{2}{3}x + 4$$

$$2x - 3y = -12$$



x	y
0	4
-6	0