

Unit 2.3 Practice Point Slope Form

Period: _____

Write an equation of the line in point slope form through the given point and with the given slope m .

1. $(2, 1); m = 3$

$y - 1 = 3(x - 2)$

2. $(-3, -5); m = -2$

$y + 5 = -2(x + 3)$

3. $(-4, 11); m = \frac{3}{4}$

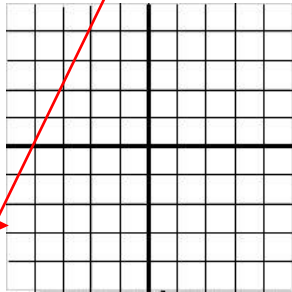
$y - 11 = \frac{3}{4}(x + 4)$

4. $(0, -3); m = -\frac{2}{3}$

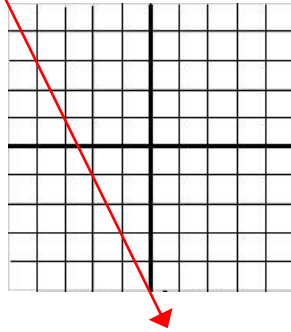
$y + 3 = -\frac{2}{3}x$

Graph each equation.

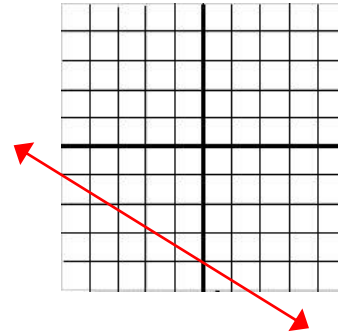
5. $y - 2 = 2(x + 3)$



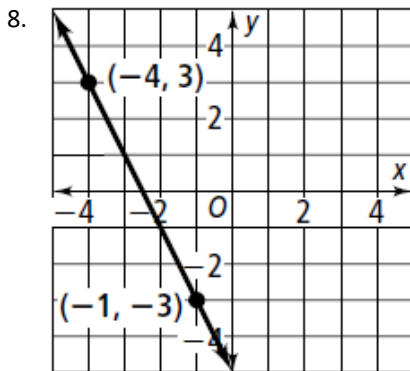
6. $y + 3 = -2(x + 1)$



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

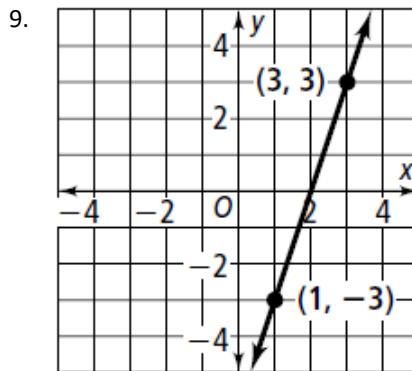


Write an equation in point slope form for each line. Hint: use the points given to write the equation.



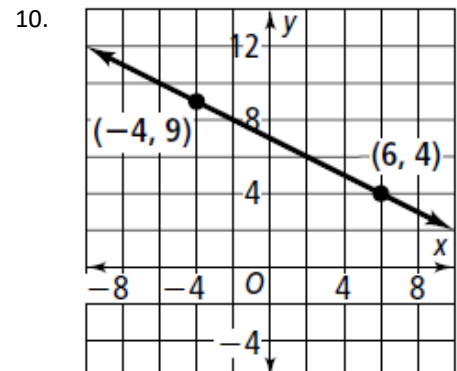
$y + 3 = -2(x + 1)$ or

$y - 3 = -2(x + 4)$



$y + 3 = 3(x - 1)$ or

$y - 3 = 3(x - 3)$



$y - 4 = -\frac{1}{2}(x - 6)$ or

$y - 9 = -\frac{1}{2}(x + 4)$

Write an equation in point slope form of the line through the given points. Then write the equation in slope intercept form.

11. $(4, 0), (-2, 1)$

Point slope form: $y = -\frac{1}{6}(x - 4)$

or

Point slope form: $y - 1 = -\frac{1}{6}(x + 2)$

Slope intercept form: $y = -\frac{1}{6}x + \frac{2}{3}$

12. $(-3, -2), (5, 3)$

Point slope form: $y + 2 = \frac{5}{8}(x + 3)$

Point slope form: $y - 3 = \frac{5}{8}(x - 5)$

Slope intercept form: $y = \frac{5}{8}x - \frac{1}{8}$

13. $(-5, 1), (3, 4)$

Point slope form: $y - 1 = \frac{3}{8}(x + 5)$

Point slope form: $y - 4 = \frac{3}{8}(x - 3)$

Slope intercept form: $y = \frac{3}{8}x + \frac{23}{8}$

14. Open Ended

Write an equation of a line that has a slope of $-\frac{1}{2}$ in each form.

Answers may vary

a. Point slope form

$y - 1 = -\frac{1}{2}(x + 5)$

b. slope intercept form

$y = -\frac{1}{2}x - \frac{3}{2}$

Model the data in each table with a linear equation slope intercept form.
What do the slope and y-intercept represent?

15.

Time Washing (hr)	Cars washed
3	18
5	30
6	36
8	48

$y = 6x$; slope is cars washed per hour
y-intercept is cars washed when started

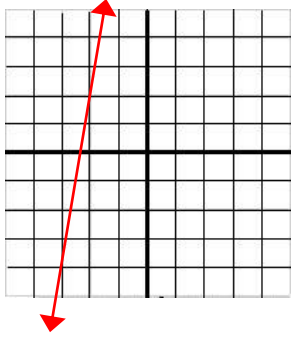
Graph the line that passes through the given point and has the given slope m .

16.

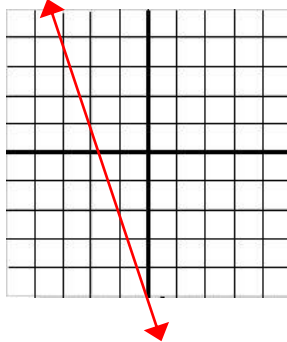
Time Flying (hr)	Distance from Airport (mi)
2	3600
4	2700
6	1800
8	900

$y = -450x + 4500$; slope is speed in mi/hr
y-intercept is distant from airport when started

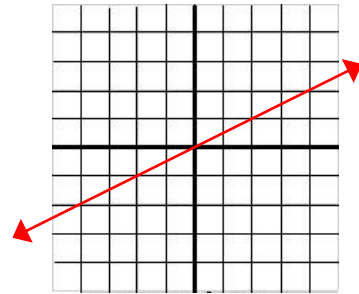
17. $(-3, -4)$; $m = 6$



18. $(-2, 1)$; $m = -3$



19. $(-4, -2)$; $m = \frac{1}{2}$



20. **Writing**

Describe what you know about the graph of a line represented by the equation $y - 3 = -\frac{2}{3}(x + 4)$.

The slope is $-\frac{2}{3}$ and the line passes through the point $(-4, 3)$.

21. **Writing**

Describe how you would use the point slope form to write the equation of a line that passes through the points $(-1, 4)$ and $(-3, -5)$ in slope intercept form.

Find the slope using the slope formula. Find b by using the slope and one of the points.

Plug the m and b into the slope intercept formula.

22. **Writing**

Describe how linear data given in a table can help you write an equation of a line in slope intercept form.

Find the slope using the slope formula. Find b by using the slope and one of the points.

Plug the m and b into the slope intercept formula.

23. A sign says that 3 tickets cost \$22.50 and that 7 tickets cost \$52.50.

Write an equation in point slope form that represents the cost of tickets.

$$y - 22.5 = 7.5(x - 3) \quad \text{or} \quad y - 52.5 = 7.5(x - 7)$$