

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

1) Slope = -4, y-intercept = -1

$$m = -4$$

$$b = -1$$

$$y = -4x - 1$$

2) Slope = 0, y-intercept = 4

Write the slope-intercept form of the equation of the line through the given point with the given slope.

3) through: (1, 0), slope = -5

$$(x, y)$$
$$(1, 0)$$

$$m = -5$$

$$y - 0 = -5(x - 1)$$

$$y = -5x + 5$$

$$y = mx + b$$

4) through: (-2, 2), slope = $\frac{3}{2}$

Write the slope-intercept form of the equation of the line through the given points.

5) through: $(5, 2)$ and $(1, -1)$ $m = \frac{y_2 - y_1}{x_2 - x_1}$ 6) through: $(-2, 4)$ and $(-4, -4)$

(x_1, y_1) (x_2, y_2)

$(5, 2)$ $(1, -1)$

$$m = \frac{-1 - 2}{1 - 5} = \frac{-3}{-4} = \frac{3}{4}$$

$$y - 2 = \frac{3}{4}(x - 5)$$

$$y = \frac{3}{4}x - \frac{15}{4} + 2$$

Finish This!!

$$y = mx + b$$

Write the slope-intercept form of the equation of the line described.

7) through: $(-3, 2)$, parallel to $y = -\frac{5}{3}x + 3$

8) through: $(-2, 1)$, parallel to $y = -x - 2$

$$m = -\frac{5}{3}$$

$$y - 2 = -\frac{5}{3}(x - (-3))$$

$$y - 2 = -\frac{5}{3}x - \frac{15}{3}$$

$$y - 2 = -\frac{5}{3}x - 5$$

$$y = -\frac{5}{3}x - 3$$

Write the slope-intercept form of the equation of the line described.

7) through: $(-3, 2)$, parallel to $y = -\frac{5}{3}x + 3$

8) through: $(-2, 1)$, parallel to $y = -x - 2$

9) through: $(3, -2)$, perp. to $y = -\frac{3}{2}x + 2$

10) through: $(-2, -4)$, perp. to $y = -\frac{2}{5}x + 5$

$$y - (-2) = \frac{2}{3}(x - 3) \quad m = -\frac{3}{2}$$

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

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

$$-\frac{3}{2} \cdot \frac{2}{3} = -\frac{6}{6} = -1$$

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

Write the point-slope form of the equation of each line given the slope and y-intercept.

11) Slope = $-\frac{4}{3}$, y-intercept = -2

12) Slope = $\frac{1}{3}$, y-intercept = -4

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



$$y - (-2) = -\frac{4}{3}(x - 0)$$

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

$$y = -\frac{4}{3}x - 4$$

Write the point-slope form of the equation of the line through the given point with the given slope.

13) through: (2, 4), slope = $\frac{3}{2}$

$$m = \frac{3}{2} \quad (x_1, y_1)$$

$$y - 4 = \frac{3}{2}(x - 2)$$

14) through: (-5, 2), slope = $\frac{1}{5}$

Write the point-slope form of the equation of the line through the given points.

15) through: (0, 0) and (-2, -1)

$$(x_1, y_1) \quad (x_2, y_2)$$

$$m = \frac{-1 - 0}{-2 - 0} = \frac{-1}{-2} = \frac{1}{2}$$

$$y - 0 = \frac{1}{2}(x - 0)$$

$$y = \frac{1}{2}x \quad y = \frac{1}{2}(x)$$

16) through: (0, 5) and (4, 4)

Write the point-slope form of the equation of the line described.

17) through: $(-5, 2)$, parallel to $y = \frac{1}{5}x - 3$

18) through: $(4, 0)$, parallel to $y = x - 1$

$$m = \frac{1}{5}$$

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

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

Write the point-slope form of the equation of the line described.

17) through: $(-5, 2)$, parallel to $y = \frac{1}{5}x - 3$

18) through: $(4, 0)$, parallel to $y = x - 1$

19) through: $(2, 3)$, perp. to $y = -2x + 5$

20) through: $(-1, -4)$, perp. to $y = -\frac{1}{9}x + 4$

$$(2, 3)$$

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

$$m = -\frac{2}{1} \perp m = +\frac{1}{2}$$

Write the point-slope form of the equation of the line described.

17) through: $(-5, 2)$, parallel to $y = \frac{1}{5}x - 3$

18) through: $(4, 0)$, parallel to $y = x - 1$

19) through: $(2, 3)$, perp. to $y = -2x + 5$

20) through: $(-1, -4)$, perp. to $y = -\frac{1}{9}x + 4$

21) through: $(3, 0)$, perp. to $y = \frac{3}{4}x - 2$

22) through: $(-4, -4)$, perp. to $y = -\frac{4}{9}x$

(x_1, y_1)
 $(3, 0)$

$$y - 0 = -\frac{4}{3}(x - 3)$$

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

$$m = \frac{3}{4} \perp m = -\frac{4}{3}$$

$$\frac{3}{4} \cdot -\frac{4}{3} = \frac{-12}{12} = -1$$

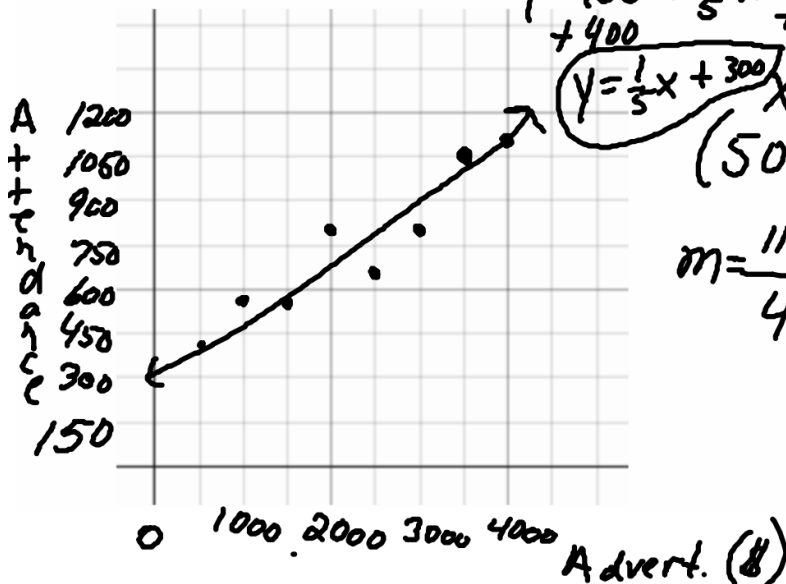
23. The table shows the amount x (in dollars) spent on advertising for a neighborhood festival and the attendance y of the festival for several years.

a. Make a scatter plot of the data. Label the graph and choose a scale. Describe the correlation.

b. Write an equation that models the attendance as a function of the amount spent on advertising.

c. Interpret the slope and y-intercept of the line of fit.

Advertising (dollars), x	Yearly Attendance, y
500	400
1000	550
1500	550
2000	800
2500	650
3000	800
3500	1050
4000	1100



$$y - 400 = \frac{1}{5}(x - 500)$$

$$y - 400 = \frac{1}{5}x - 100 + 400$$

$$y = \frac{1}{5}x + 300$$

(x_1, y_1) (x_2, y_2)
 $(500, 400)$ $(4000, 1100)$

$$m = \frac{1100 - 400}{4000 - 500} = \frac{700}{3500} = \frac{7}{35} = \frac{1}{5}$$

Determine if the lines are parallel, perpendicular, or neither. Explain.

24. $2x + 6y = -3$ $y = 3x - 8$	25. $y = 4x + 2$ $x + 4y = 3$	26. $4x - 3y = 2$ $y = \frac{4}{3}x + 2$
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perpend.

$$y = 4x + 2$$
$$m = 4$$
$$4 \cdot \left(-\frac{1}{4}\right) = -1$$
$$x + 4y = 3$$
$$\begin{array}{r} -x \\ \hline 4y = -x + 3 \\ \frac{4y}{4} = \frac{-x + 3}{4} \\ y = -\frac{x}{4} + \frac{3}{4} \end{array}$$
$$m = -\frac{1}{4}$$

Tell whether a correlation is likely in the situation. Explain your reasoning.

27. The time spent studying and the grade received.

28. The number of dogs at the park and the number of kites in the sky.