

Name

Key

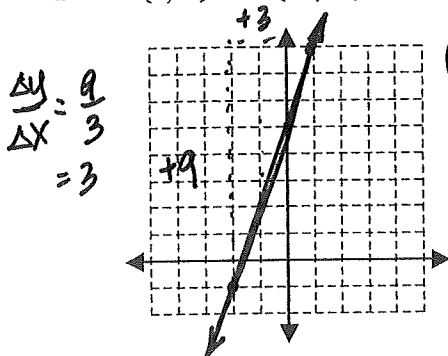
Period

Date

Writing Equations of Lines Practice

Graph the line that passes through the points. Then write the equation of the line in slope-intercept form.

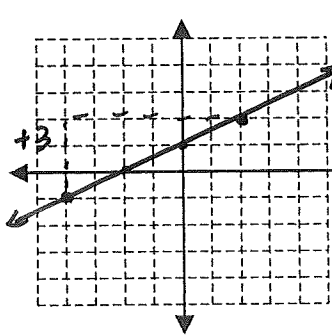
1. (1, 8) and (-2, -1)



$$\frac{\Delta y}{\Delta x} = \frac{9}{3} = 3$$

$$y = 3x + 5$$

2. (-4, -1) and (2, 2)



$$\frac{\Delta y}{\Delta x} = \frac{3}{6} = \frac{1}{2}$$

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

Use the slope formula to find the slope of the line between the given points.

3. (-4, 1) and (2, -5)

$$\frac{\Delta y}{\Delta x} = \frac{1 - (-5)}{-4 - 2} = \frac{6}{-6} = -1$$

4. (2, -3) and (-3, 7)

$$\frac{\Delta y}{\Delta x} = \frac{-3 - 7}{2 - (-3)} = \frac{-10}{5} = -2$$

Write the equation in slope-intercept form for the line with the given slope that contains the given point.

5. slope = 1; (-2, 3)

$$\begin{aligned} y &= x + b \\ 3 &= (-2) + b \\ \underline{+2 \quad +2} \\ 5 &= b \end{aligned}$$

$$y = x + 5$$

6. slope = -3; (-1, 6)

$$\begin{aligned} y &= -3x + b \\ 6 &= -3(-1) + b \\ 6 &= 3 + b \\ \underline{-3 \quad -3} \\ 3 &= b \end{aligned}$$

$$y = -3x + 3$$

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

7. (0, -5) and (3, 4)

$$\begin{aligned} \frac{\Delta y}{\Delta x} &= \frac{-5 - 4}{0 - 3} \\ &= \frac{-9}{-3} \\ &= 3 \end{aligned}$$

$$\begin{aligned} y &= 3x + b \\ -5 &= 3(0) + b \\ -5 &= b \end{aligned}$$

$$y = 3x - 5$$

8. (2, 4) and (1, -2)

$$\begin{aligned} \frac{\Delta y}{\Delta x} &= \frac{4 - (-2)}{2 - 1} \\ &= \frac{6}{1} \\ &= 6 \end{aligned}$$

$$\begin{aligned} y &= 6x + b \\ 4 &= 6(2) + b \\ 4 &= 12 + b \\ \underline{-12 \quad -12} \\ -8 &= b \end{aligned}$$

$$y = 6x - 8$$

9. (2, -2) and (-4, 1)

$$\begin{aligned} \frac{\Delta y}{\Delta x} &= \frac{-2 - 1}{2 - (-4)} \\ &= \frac{-3}{6} \\ &= -\frac{1}{2} \end{aligned}$$

$$\begin{aligned} y &= -\frac{1}{2}x + b \\ -2 &= -\frac{1}{2}(2) + b \\ -2 &= -1 + b \\ \underline{+1 \quad +1} \\ -1 &= b \end{aligned}$$

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

10. (4, 3) and (-8, 0)

$$\begin{aligned} \frac{\Delta y}{\Delta x} &= \frac{3 - 0}{4 - (-8)} \\ &= \frac{3}{12} \\ &= \frac{1}{4} \end{aligned}$$

$$\begin{aligned} y &= \frac{1}{4}x + b \\ 0 &= \frac{1}{4}(-8) + b \\ 0 &= -2 + b \\ \underline{+2 \quad +2} \\ 2 &= b \end{aligned}$$

$$y = \frac{1}{4}x + 2$$

11. (9, -2) and (-3, 2)

$$\frac{\Delta y}{\Delta x} = \frac{2 - (-2)}{-3 - 9} = \frac{4}{-12} = -\frac{1}{3}$$

$$y = -\frac{1}{3}x + b$$

$$2 = -\frac{1}{3}(-3) + b$$

$$2 = 1 + b$$

$$1 = b$$

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

12. (-3, -3) and (7, 2)

$$\frac{\Delta y}{\Delta x} = \frac{-3 - 2}{-3 - 7} = \frac{-5}{-10} = \frac{1}{2}$$

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

$$-3 = \frac{1}{2}(-3) + b$$

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

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

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

13. (1, 2) and (7, 2)

$$\frac{\Delta y}{\Delta x} = \frac{2 - 2}{1 - 7} = \frac{0}{-6} = 0$$

$$y = 0x + b$$

$$2 = 0(1) + b$$

$$2 = b$$

$y = 2$

14. (5, -6) and (5, -3)

$$\frac{\Delta y}{\Delta x} = \frac{-6 - (-3)}{5 - 5} = \frac{-3}{0}$$

$x = 5$

undefined slope
OR
no slope

Is the relationship shown by the data linear? If it is, model the data with an equation.

LINEAR

15.

x	y
2	3
3	7
4	11
5	15

+1 L $\rightarrow +4$
+1 L $\rightarrow +4$
+1 L $\rightarrow +4$

$$\frac{\Delta y}{\Delta x} = \frac{4}{1} = 4$$

$y = 4x - 5$

$$y = 4x + b$$

$$3 = 4(2) + b$$

$$3 = 8 + b$$

$$-8 - 8$$

$$-5 = b$$

16.

x	y
-3	4
-1	6
1	7
3	10

+2 L $\rightarrow +2$
+2 L $\rightarrow +1$
+2 L $\rightarrow +3$

$$\frac{\Delta y}{\Delta x} = \frac{2}{2} \neq \frac{1}{2} \neq \frac{3}{2}$$

Not Linear

LINEAR

17.

x	y
-2	5
3	-5
7	-13
11	-21

+5 L $\rightarrow -10$
+4 L $\rightarrow -8$
+4 L $\rightarrow -8$

$$\frac{\Delta y}{\Delta x} = \frac{-10}{5} = -\frac{8}{4} = -\frac{8}{4} = -2$$

$y = -2x + 1$

$$y = -2x + b$$

$$5 = -2(-2) + b$$

$$5 = 4 + b$$

$$-4 - 4$$

$$1 = b$$

LINEAR

18.

x	y
2	3
5	18
8	33
14	63

+3 L $\rightarrow +15$
+3 L $\rightarrow +15$
+6 L $\rightarrow +30$

$$\frac{\Delta y}{\Delta x} = \frac{15}{3} = \frac{15}{3} = \frac{30}{6} = 5$$

$$y = 5x + b$$

$$3 = 5(2) + b$$

$$3 = 10 + b$$

$$-10 - 10$$

$$-7 = b$$

$y = 5x - 7$

LINEAR

19.

x	y
-2	25
0	19
3	10
7	-2

+2 L $\rightarrow -6$
+3 L $\rightarrow -9$
+4 L $\rightarrow -12$

$$\frac{\Delta y}{\Delta x} = \frac{-6}{2} = \frac{-9}{3} = \frac{-12}{4} = -3$$

$$y = -3x + b$$

$y = -3x + 19$

y-intercept in table!

20.

x	y
2	3
3	10
4	17
10	24

+1 L $\rightarrow +7$
+1 L $\rightarrow +7$
+6 L $\rightarrow +7$

$$\frac{\Delta y}{\Delta x} = \frac{7}{1} = \frac{7}{1} \neq \frac{7}{6}$$

Not Linear