

1. Where does the graph of $y = -3x - 18$ intersect the x-axis?

- A. (0, 6)
- B. (0, -6)
- C. (6, 0)
- D. (-6, 0)

2. Tickets to a Movie cost \$5 for children and \$8 for adults. The equation $5x + 8y = 80$ represents the number of children and adults who can see the movie with \$80. If no adults see the movie, how many children can see the movie with \$80?

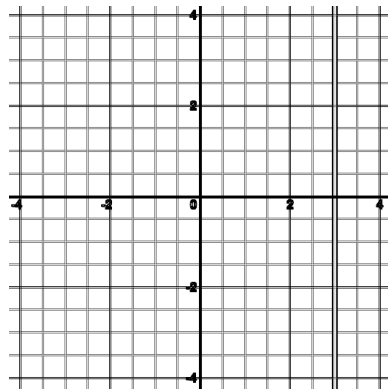
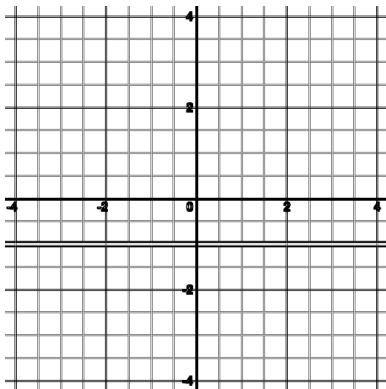
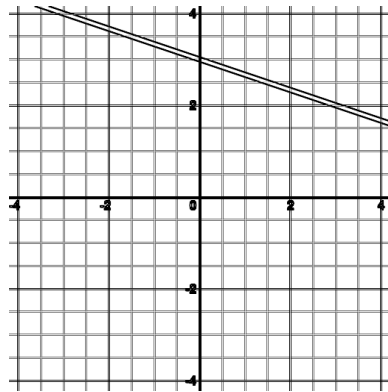
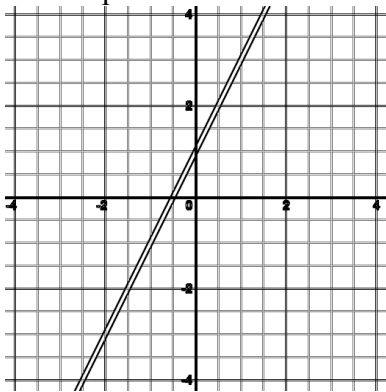
3. Find the slope through the following:

(3, 7) and (-1, 4)

(-3, 2) and (6, 2)

a vertical line

4. Find the slope of the lines shown:



5. In 1996, there were 171 area codes in the US. In 2007, there were 215. Find the rate of change from 1996 to 2007.

6. Consider the table and use it to answer the questions below:

X	Y
0	0
1	2
2	4
3	6
4	A
5	10

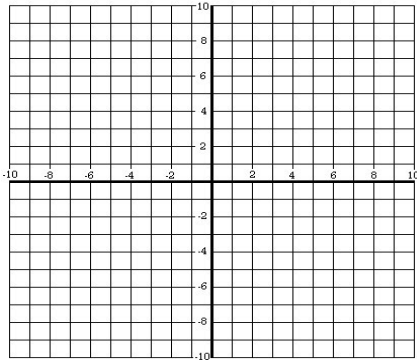
Find the value of A so the pattern is linear

Find the rate of change for the table

Find the x-intercept and y-intercept

State the equation of the line for the pattern shown in the table

Graph the values in the table



Find the y-value if $x = 10$

Find the x-value if $y = -4$

7. Consider the table and use it to answer the questions below:

X	Y
0	6
1	3
2	0
3	-3
4	-6
5	-9

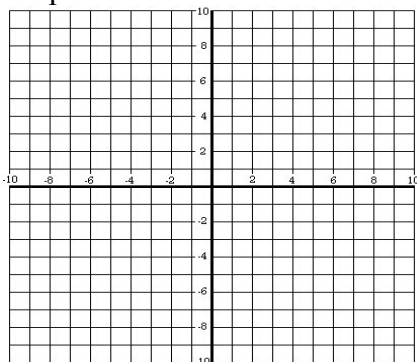
Is the pattern is linear?

Find the rate of change for the table

Find the x-intercept and y-intercept

Which equation describes the line for the pattern shown in the table?

Graph the values in the table



A. $y = 3x + 2$

B. $y = -3x + 6$

C. $y = 3x + 6$

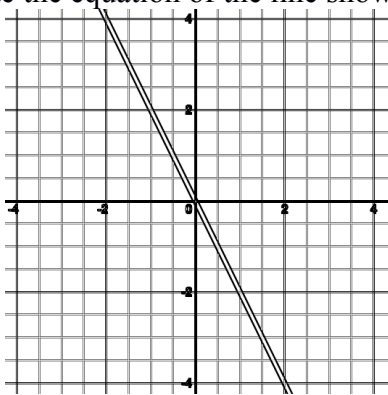
D. $y = -3x + 2$

Find the y-value if $x = 7$

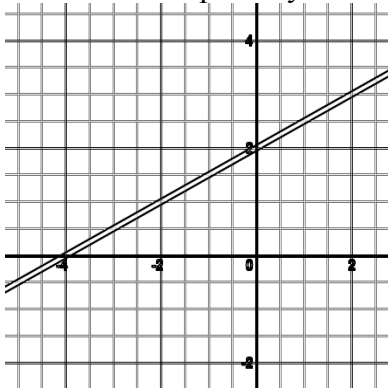
Find the x-value if $y = -9$

8. Suppose x varies directly as y . If $y = 26$ then $x = 8$. Find x when $y = 65$.

9. State the equation of the line shown below in function notation:



10. State the x-intercept and y-intercept for the line shown below:



11. Are the following function linear?

$$f(x) = 2x + 6$$

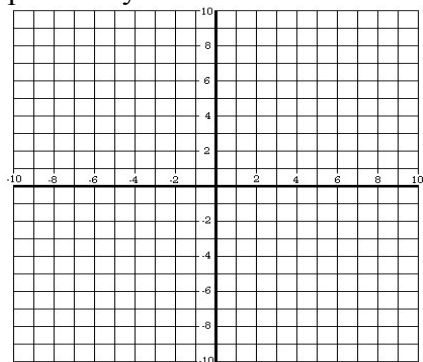
$$y = x/5$$

$$xy = -2$$

$$2/x + y = 9$$

$$x^2 - y = 0$$

12. graph $2x + y = 4$



Name Key

1. Where does the graph of $y = -3x - 18$ intersect the x-axis?

- A. (0, 6)
- B. (0, -6)
- C. (6, 0)
- D. (-6, 0)**

$$0 = -3x - 18$$

$$\begin{array}{r} +18 \\ \hline 18 = -3x \\ \frac{18}{-3} = \frac{-3x}{-3} \end{array} \quad x = -6 \quad (-6, 0)$$

2. Tickets to a Movie cost \$5 for children and \$8 for adults. The equation $5x + 8y = 80$ represents the number of children and adults who can see the movie with \$80. If no adults see the movie, how many children can see the movie with \$80?

$$y = 0$$

$$\frac{5x}{5} = \frac{80}{5} \quad x = 16 \text{ children}$$

3. Find the slope through the following:

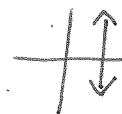
(3, 7) and (-1, 4)

$$\Delta x \quad \begin{array}{c|c|c} x & y & \Delta y \\ \hline -4 & 3 & -3 \\ -1 & 4 & -4 \end{array} \quad \frac{-3}{-4} = \frac{3}{4}$$

(-3, 2) and (6, 2)

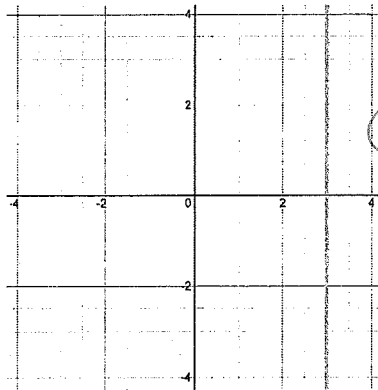
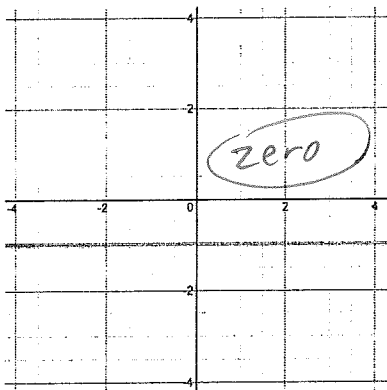
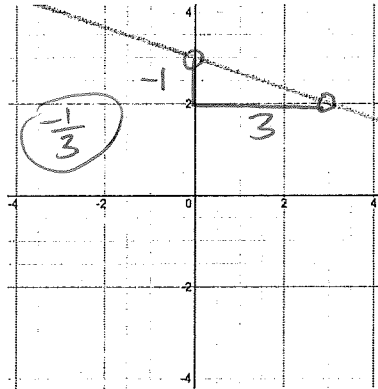
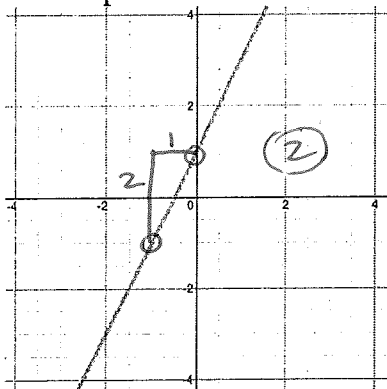
$$\Delta x \quad \begin{array}{c|c|c} x & y & \Delta y \\ \hline -3 & 2 & 0 \\ 6 & 2 & 0 \end{array} \quad \frac{0}{9} = 0$$

a vertical line



undef. slope

4. Find the slope of the lines shown:



5. In 1996, there were 171 area codes in the US. In 2007, there were 215. Find the rate of change from 1996 to 2007.

$$\Delta x \quad \begin{array}{c|c|c} x & y & \Delta y \\ \hline 1996 & 171 & +44 \\ 2007 & 215 & \end{array}$$

$$\frac{\Delta y}{\Delta x} = \frac{44}{11} = 4$$

each year, 4 new area codes were added.

6. Consider the table and use it to answer the questions below:

X	Y
0	0
1	2
2	4
3	6
4	A
5	10

ΔX
+1

ΔY
+2

Find the value of A so the pattern is linear

8

Find the rate of change for the table

$$\frac{2}{1} = 2$$

Find the x-intercept and y-intercept

Both are zero, passes through the origin

State the equation of the line for the pattern shown in the table

$$Y = 2X$$

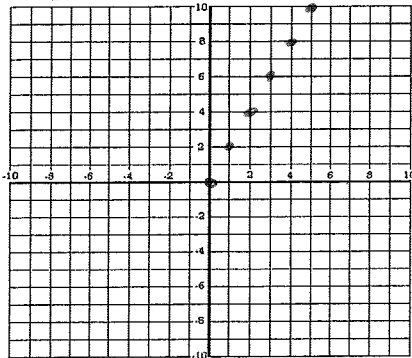
Find the y-value if x = 10

$$Y = 2(10) \quad Y = 20$$

Find the x-value if y = -4

$$\frac{-4}{2} = \frac{2X}{2} \quad -2 = X$$

Graph the values in the table



7. Consider the table and use it to answer the questions below:

X	Y
0	6
1	3
2	0
3	-3
4	-6
5	-9

ΔX +1

ΔY -3

Is the pattern is linear?

Yes, consistent rate of change

Find the rate of change for the table

$$\frac{\Delta Y}{\Delta X} = \frac{-3}{1} = -3$$

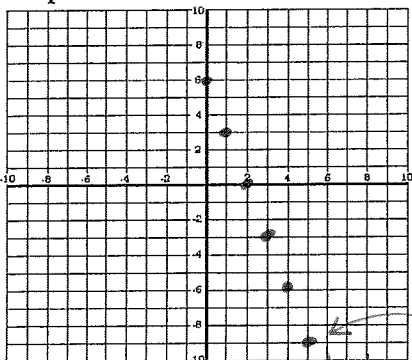
Find the x-intercept and y-intercept

↓ ↓
2 6

Which equation describes the line for the pattern shown in the table?

- A. $y = 3x + 2$
- B. $y = -3x + 6$
- C. $y = 3x + 6$
- D. $y = -3x + 2$

Graph the values in the table



Find the y-value if x = 7

$$Y = -3(7) + 6$$

$$-21 + 6 = -15$$

$$Y = -15$$

Find the x-value if y = -9

$$-9 = -3x + 6$$

$$-6 \quad -6$$

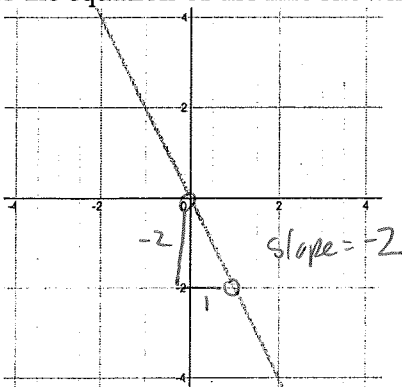
$$\frac{-15}{-3} = \frac{-3x}{-3}$$

$$5 = X$$

8. Suppose x varies directly as y . If $y = 26$ then $x = 8$. Find x when $y = 65$.

$$\frac{x}{8} = \frac{y}{26} \quad (20)$$

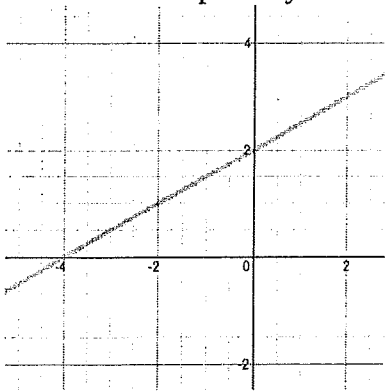
9. State the equation of the line shown below in function notation:



$$y = -2x$$

$$f(x) = -2x$$

10. State the x-intercept and y-intercept for the line shown below:



$$x\text{-int: } -4$$

$$y\text{-int: } 2$$

11. Are the following function linear?

$$f(x) = 2x + 6$$

Yes

$$y = x/5$$

Yes

$$xy = -2$$

NO

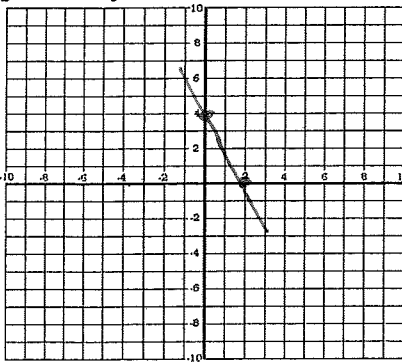
$$2/x + y = 9$$

NO

$$x^2 - y = 0$$

NO

12. graph $2x + y = 4$



$$2x + y = 4$$

$$y\text{-int: } 4$$

$$2x + y = 4$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x\text{-int: } 2$$