3.2 Graphing Linear Equations

Solutions

Determine if the ordered pair is a solution of the equation.

1. $2x + 3y = 5$

(a) $(1, 1)$

$2 \cdot 1 + 3 \cdot 1 = 5$?
$2 + 3 = 5$?
$5 = 5$? Yes.

(b) $(4, -1)$

$2 \cdot 4 + 3 \cdot -1 = 5$?
$8 - 3 = 5$?
$5 = 5$? Yes.

(c) $(-1, 2)$

$2 \cdot -1 + 3 \cdot 2 = 5$?
$-2 + 6 = 5$?
$4 = 5$? No.

2. $-3x + 4y = -5$

(a) $(1, 2)$

(b) $(3, 1)$

(c) $(0, -1.25)$

Complete the ordered pairs so they will be solutions of the given equation.

3. $y = 3x - 5$

(a) $(1, \underline{-2})$

$y = 3 \cdot 1 - 5$
$y = 3 - 5$
$y = -2$

(b) $(-2, \underline{-11})$

$y = 3 \cdot -2 - 5$
$y = -6 - 5$
$y = -11$

(c) $(\underline{5}, 10)$

$10 = 3x - 5$
$+5 \quad +5$
$15 = 3x$
$\frac{15}{3} = \frac{3x}{3}$
$5 = x$

4. $y = -4x + 1$

(a) $(2, \_\_\_\_\_)$

(b) $(-3, \_\_\_\_\_)$

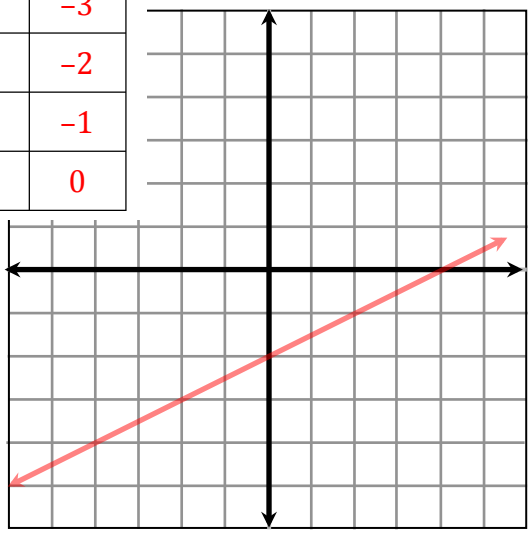
(c) $(\_\_\_\_\_, -3)$

Answers: **1. (a)** yes, **(b)** yes, **(c)** no; **3. (a)** –2, **(b)** –11, **(c)** 5;

Complete a table of values for each equation and graph the equations.

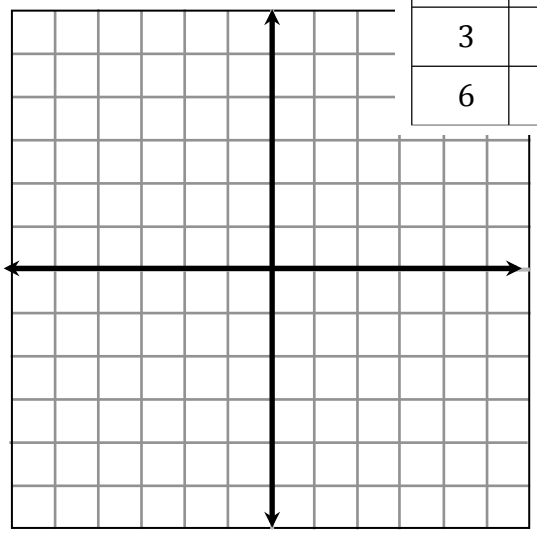
5. $y = \frac{1}{2}x - 2$

x	y
−4	− 4
−2	−3
0	−2
2	−1
4	0



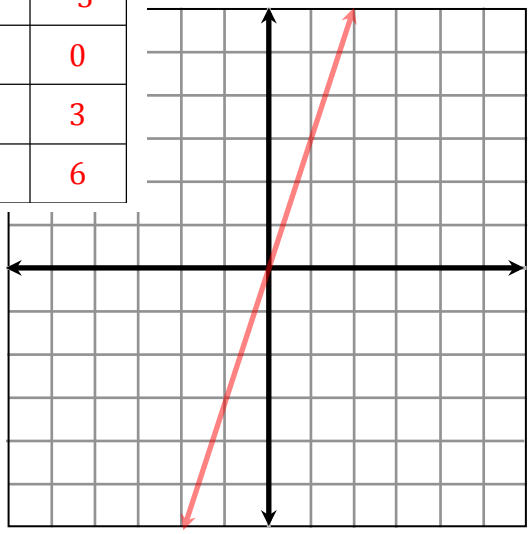
6. $y = -\frac{2}{3}x + 1$

x	y
−6	
−3	
0	
3	
6	



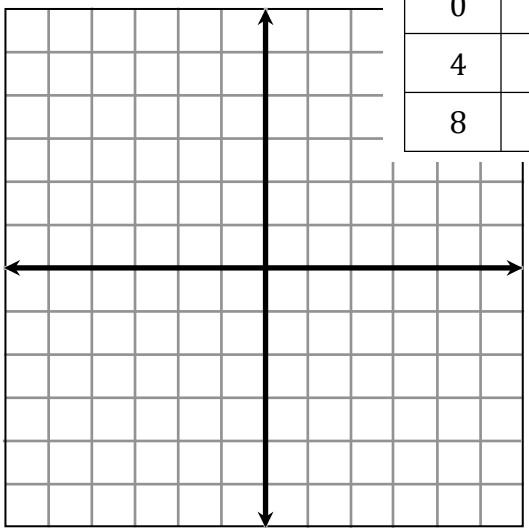
7. $y = 3x$

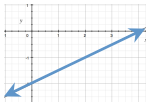
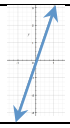
x	y
−2	−6
−1	−3
0	0
1	3
2	6



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

x	y
−8	
−4	
0	
4	
8	

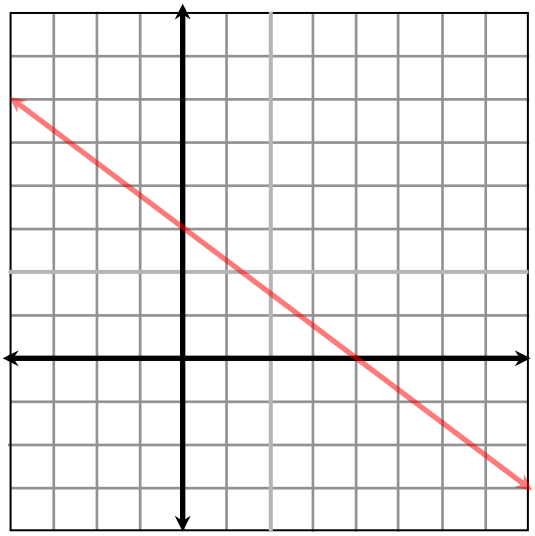


Answers: **5.**  ; **7.** 

Find the x-intercept and the y-intercept and use them to graph each equation.

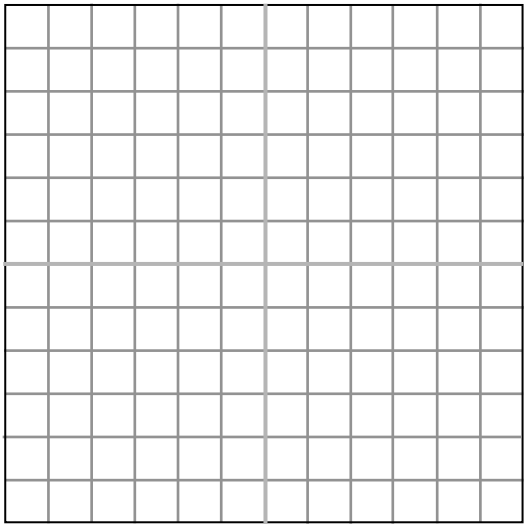
9. $3x + 4y = 12$

	x	y
x-intercept	4	0
y-intercept	0	3



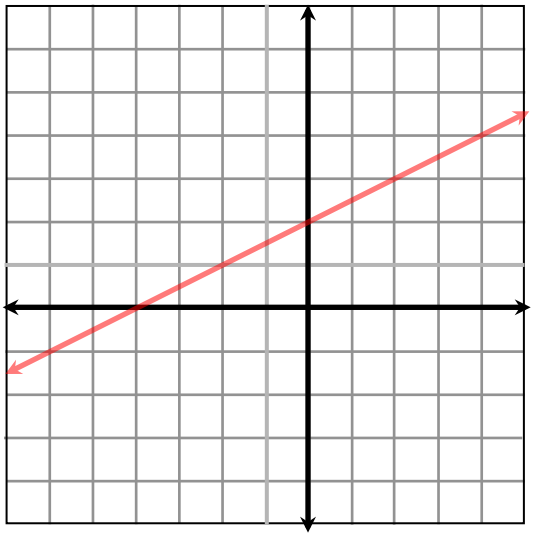
10. $5x - y = 10$

	x	y
x-intercept		0
y-intercept	0	



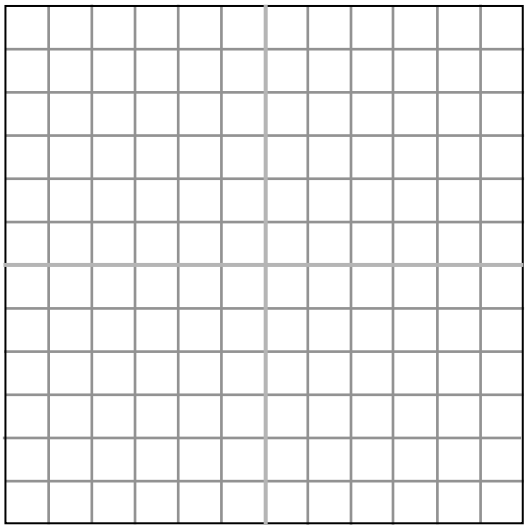
11. $-2x + 4y = 8$

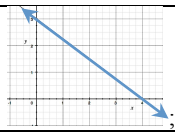
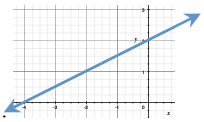
	x	y
x-intercept	-4	0
y-intercept	0	2



12. $-4x + 10y = 20$

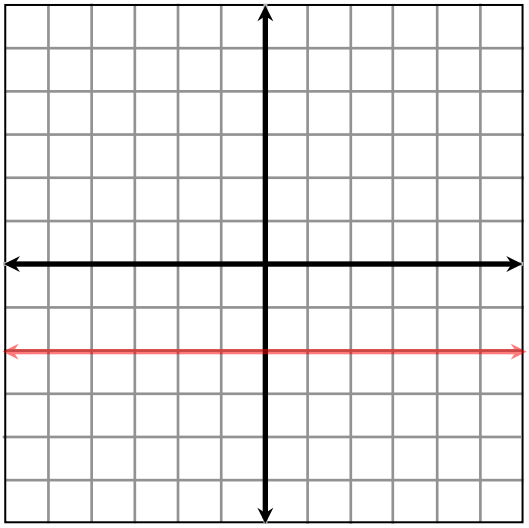
	x	y
x-intercept		0
y-intercept	0	



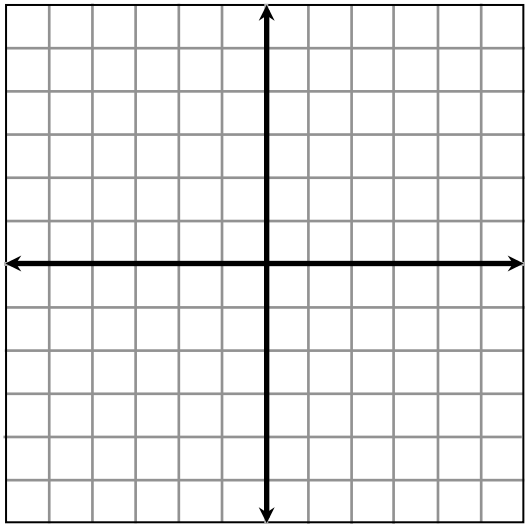
Answers: **9.**  ; **11.** 

Graph by any method.

13. $y = -2$



14. $x = 1$



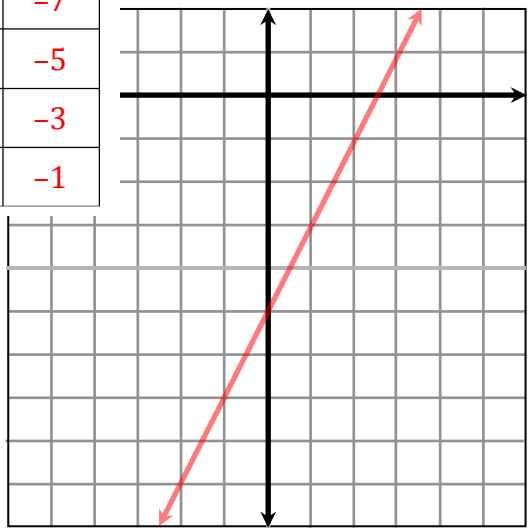
15. $2x - y = 5$

$-2x \quad -2x$

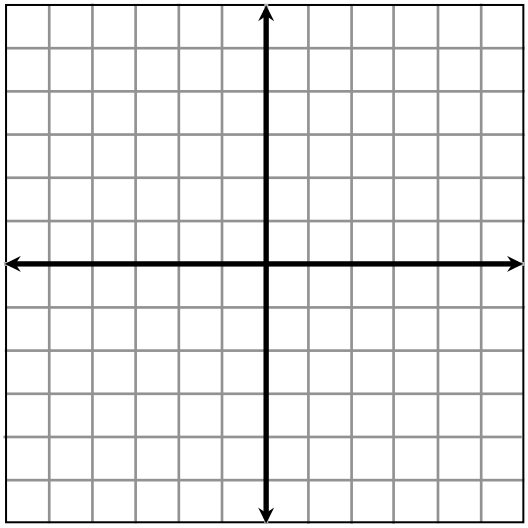
$-y = -2x + 5$

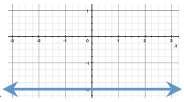
$y = 2x - 5$

x	y
−2	−9
−1	−7
0	−5
1	−3
2	−1



16. $x + 2y = 4$

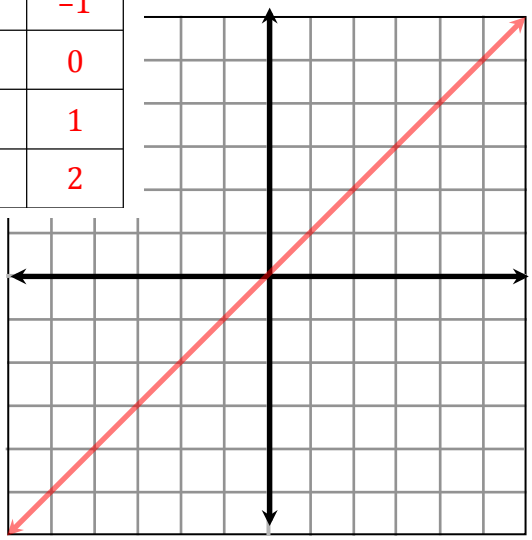


Answers: **13.**  ; **15.** 

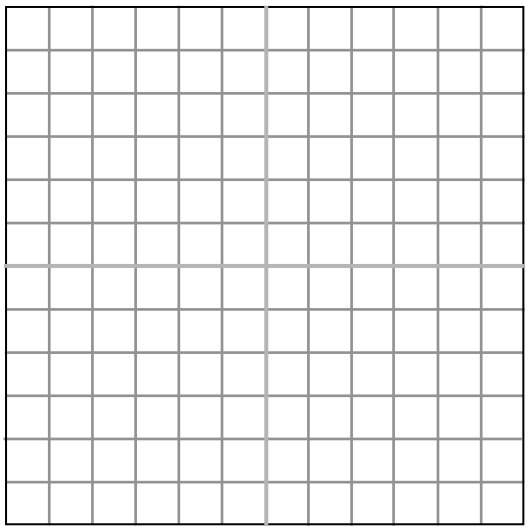
Graph by any method.

17. $x = y$

x	y
−2	−2
−1	−1
0	0
1	1
2	2

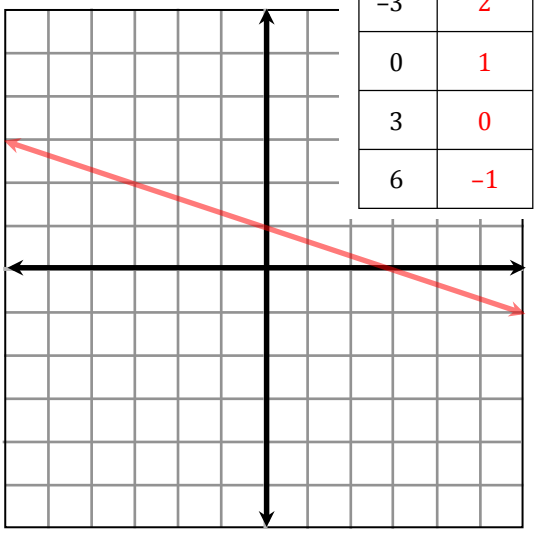


18. $x + y = 1$

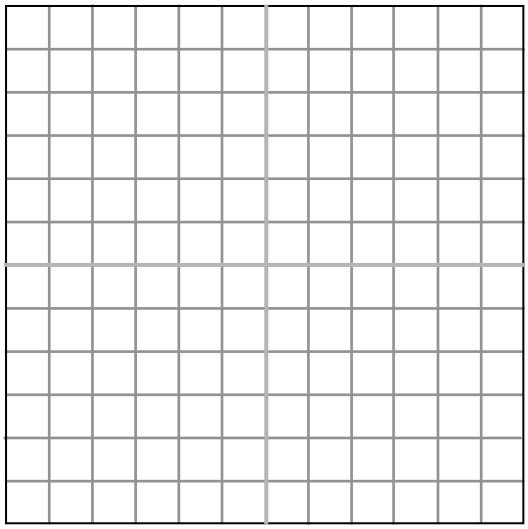


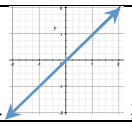
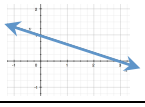
19. $y = -\frac{1}{3}x + 1$

x	y
−6	3
−3	2
0	1
3	0
6	−1

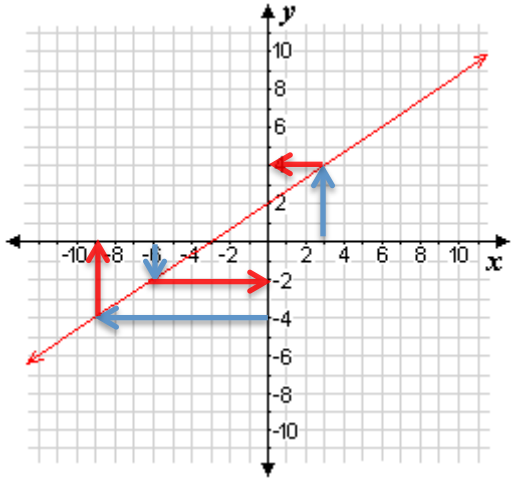


20. $y = \frac{1}{2}x - 3$



Answers: **17.**  ; **19.** 

Use the graph to find the requested x or y value.



21. If $x = 3$, find y.

$y = 4$

22. If $x = 0$, find y.

23. If $x = -6$, find y.

$y = -2$

24. If $x = -3$, find y.

25. If $y = -4$, find x.

$x = -9$

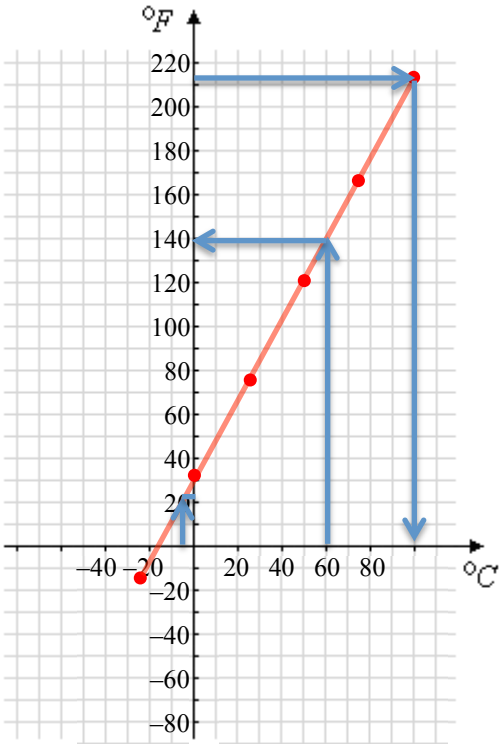
26. If $y = 0$, find x.

Answers: **21.** 4; **23.** –2; **25.** –9

Using the Celsius to Fahrenheit conversion formula given below, fill in the table by converting each Celsius temperature to Fahrenheit. Then plot the values on the coordinate plane provided.

$$F = \frac{9}{5}C + 32$$

C	F
–25	–13
0	32
25	77
50	122
75	167
100	212



Use the graph to convert each given temperature from Fahrenheit to Celsius or Celsius to Fahrenheit.

27. 60° C
= 140° F

28. 10° C

29. 212° F
= 100° C

30. 41° F

31. –5° C
= 100° C

32. –22° F

Answers: **27**. 140° F; **29**. 100° C; **31**. 23° F