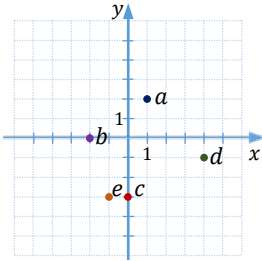


Graphs and Linear Functions - ANSWERS

G1 Exercises

1.

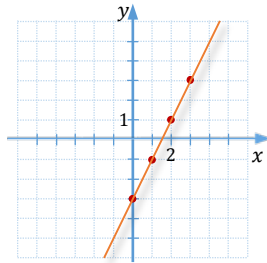


3. yes

5. no

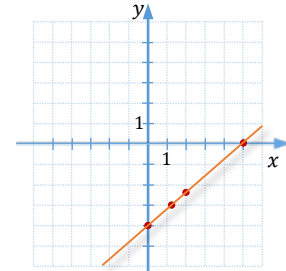
7.

x	y
-3	3
0	2
3	1
6	0



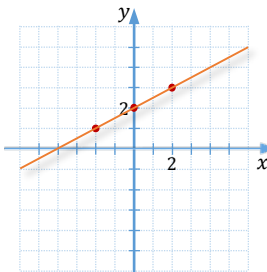
9.

x	y
0	-4
5	0
2	$-\frac{12}{5}$
$\frac{5}{4}$	-3



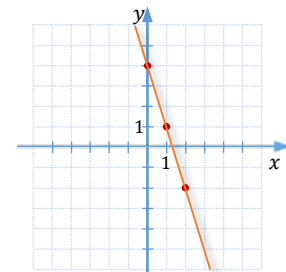
11.

x	y
0	2
2	3
-2	1



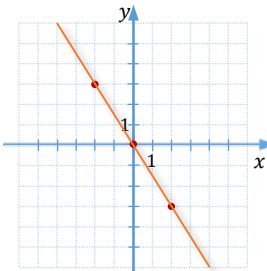
13.

x	y
0	4
1	1
2	-2



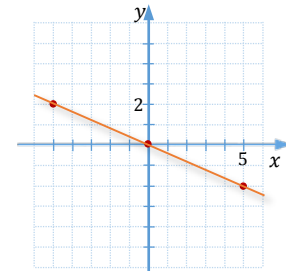
15.

x	y
-2	3
0	0
2	-3



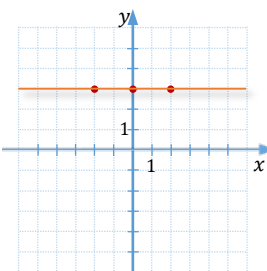
17.

x	y
0	0
5	-2
-5	2



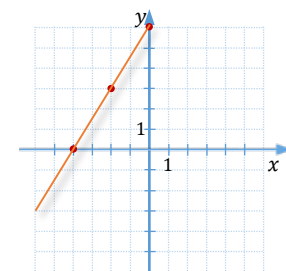
19.

x	y
-2	3
0	3
2	3



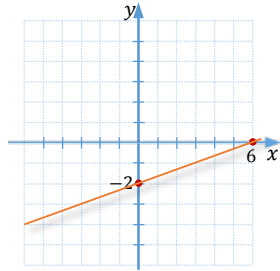
21.

x	y
0	6
-2	3
-4	0



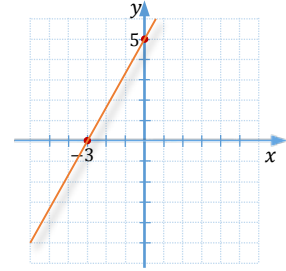
23.

x	y
6	0
0	-2



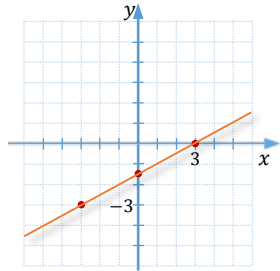
25.

x	y
-3	0
0	5



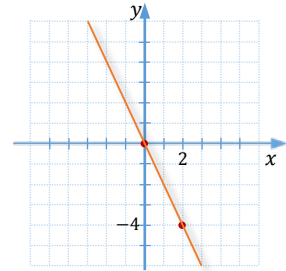
27.

x	y
3	0
0	$-\frac{3}{2}$
-3	-3

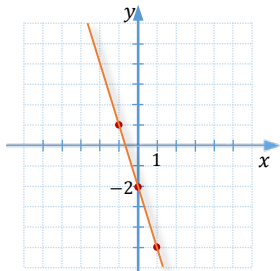


29.

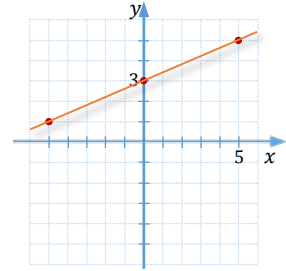
x	y
0	0
2	-4



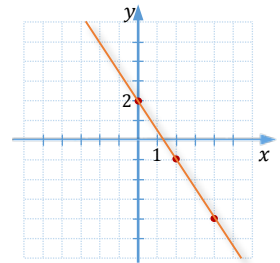
31. y-int. = 2
slope = -3



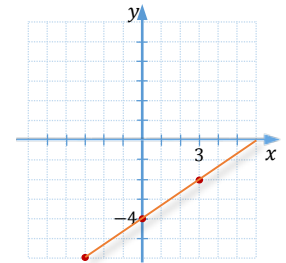
33. y-int. = 3
slope = $\frac{2}{5}$



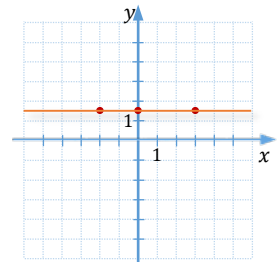
35. y-int. = 2
slope = $-\frac{3}{2}$



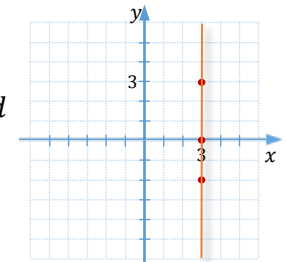
37. y-int. = -4
slope = $\frac{2}{3}$



39. y-int. = $\frac{3}{2}$
slope = 0



41. y-int. = none
slope = *undefined*



43. $(\frac{3}{2}, 0)$

45. $(-\frac{9}{2}, 8)$

47. $(\frac{11}{20}, -\frac{17}{12})$

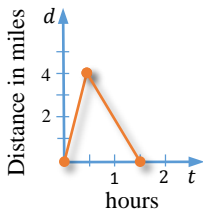
49. (3, -4)

51. (3, 10)

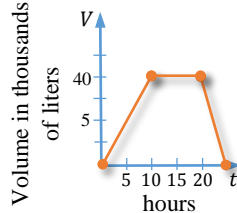
G2 Exercises

- 1. $-\frac{1}{3}$
- 3. 4
- 5. $\frac{1}{2}$
- 7. $\frac{4}{5}$
- 9. undefined
- 11. -1
- 13. $\frac{4}{9}$
- 15. $y = -3x - 5$
- 17. $y = -\frac{2}{5}x + \frac{14}{5}$
- 19. $y = -1$
- 21. $\frac{1}{2}$
- 23. $\frac{2}{3}$
- 25. $-\frac{5}{3}$
- 27. 0
- 29. 3
- 31. $a - C, b - A, c - D, d - B$
- 33. For the first 4 years, the pay raise was 0 %/year.
- 35. On average, between 6 and 16 years old boys grow 6.7 cm/year.

37.



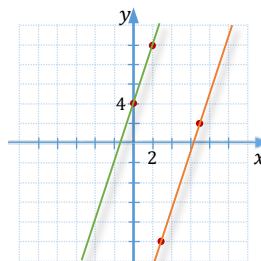
39.



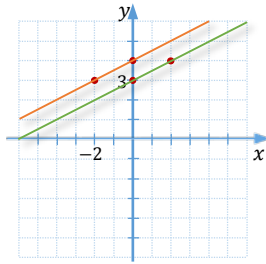
- 41. 375 km/hr
- 43. perpendicular
- 45. parallel
- 47. neither
- 49. perpendicular
- 51. not collinear

G3 Exercises

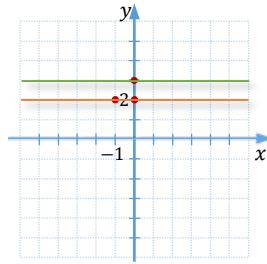
- 1. $x + 2y = -14$
- 3. $4x - 5y = 20$
- 5. $4x + 6y = -9$
- 7. $y = \frac{1}{6}x - \frac{5}{6}$
- 9. $y = \frac{4}{5}x - 2$
- 11. $y = \frac{4}{5}x - 2$
- 13. $y = \frac{1}{4}x + 2$
- 15. $y = -x + 3$
- 17. $y = \frac{1}{2}x + \frac{7}{2}$
- 19. $y = \frac{3}{2}x - 1$
- 21. $y = -x + 3$
- 23. $y = -\frac{7}{6}x + \frac{4}{3}$
- 25. $y = \frac{5}{4}x - \frac{1}{3}$
- 27. $y = 7$
- 29. $x = -1$
- 31. $y = 6$
- 33. $x = -\frac{3}{4}$
- 35. $3x - y = 19$



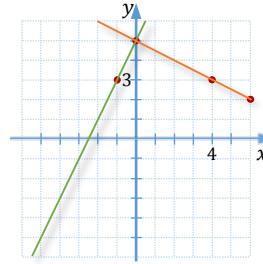
37. $x - 2y = -8$



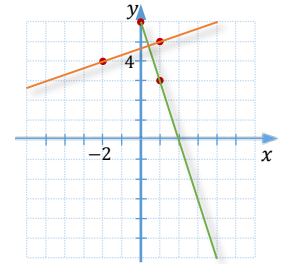
39. $y = 2$



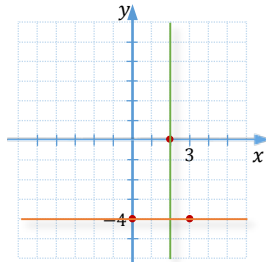
41. $x + 2y = 10$



43. $x - 3y = -14$



45. $y = -4$



47. $C = 49.95n + 80$;
\$679.40

49. a. $C = 23d + 60$;
b. 6 days

51. $N = \frac{17}{3}t + 8$

53. a. $C = 800y - 1581200$;

b. The slope of 800 indicates that the annual tuition and fees for out-of-state students at Oxford University was increasing by 800\$/year between 2007 and 2016.

c. \$36400

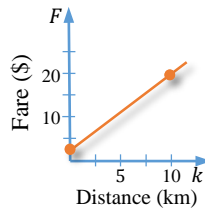
55. $A = 180t + 2000$

57. a. $F = 1.75k + 2.5$

c. the charge per kilometer

d. 12 km

b.



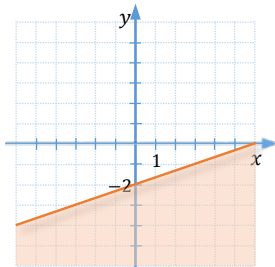
G4 Exercises

1. yes; yes

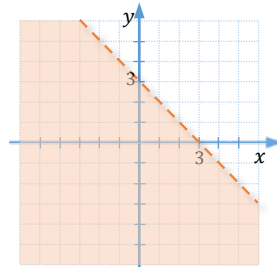
3. no; yes

5. a. - II; b. - IV; c. - I; d. - III;

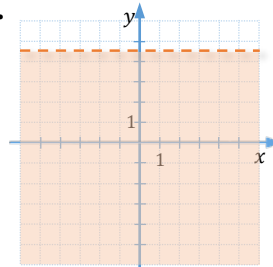
7.



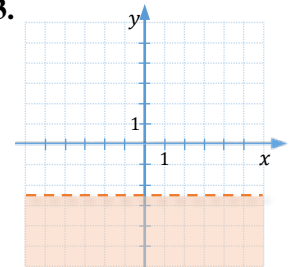
9.



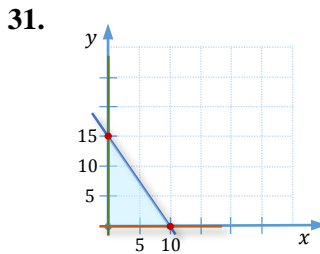
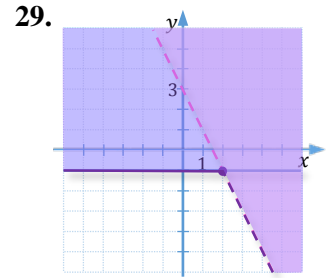
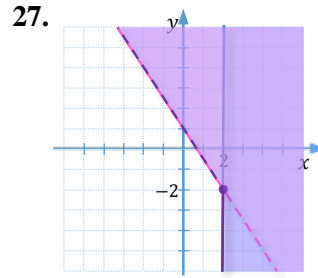
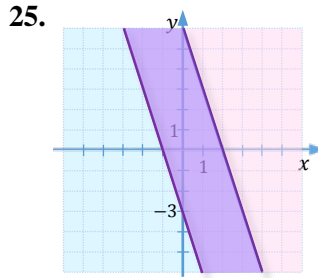
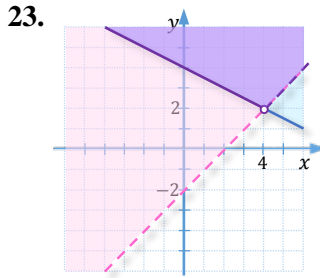
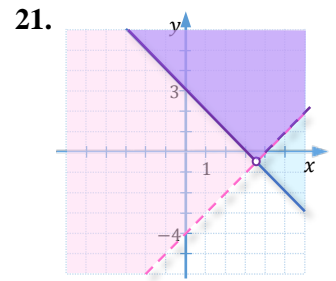
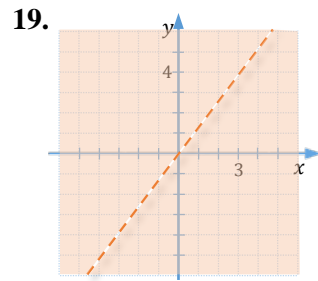
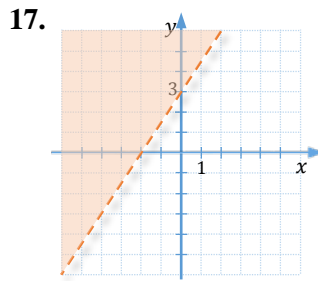
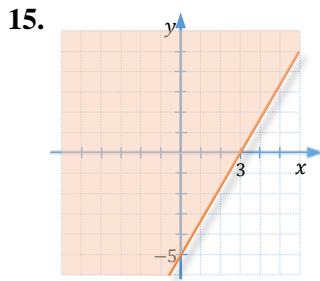
11.



13.



A12



G5 Exercises

1. not a function
domain = $\{0, 2\}$
range = $\{2, 3, 4\}$

3. function
domain = $\{2, 3, 4, 5\}$
range = $\{2, 3, 4, 5\}$

5. not a function
domain = $\{a, b\}$
range = $\{2, 4, 5\}$

7. function
domain = $\{a, b, c\}$
range = $\{2, 4\}$

9. not a function
domain = $\{0, 1\}$
range = $\{-2, -1, 1, 2\}$

11. function
domain = $\{3, 6, 9, 12\}$
range = $\{1, 2\}$

13. function
domain = \mathbb{R}
range = $[0, \infty)$

15. function
domain = \mathbb{R}
range = \mathbb{R}

17. not a function
domain = \mathbb{R}
range = $[-4, 4]$

19. not a function
domain = \mathbb{R}
range = \mathbb{R}

21. function
domain = \mathbb{R}

23. function
domain = \mathbb{R}

25. not a function
domain = \mathbb{R}

27. not a function
domain = $[0, \infty)$

29. function
domain = $[0, \infty)$

31. function
domain = $\mathbb{R} \setminus \{-5\}$

33. function
domain = $\mathbb{R} \setminus \{2\}$

35. not a function
domain = \mathbb{R}

37. not a function
domain = \mathbb{R}

39. function
domain = \mathbb{R}

41. not a function
domain = $[-2, 2]$

G6 Exercises

1. a. 2 b. 3

3. a. 1 b. $\{-1,0\}$

5. a. 4 b. 2

7. a. -1 b. $\{-5,1\}$ 9. $f(1) = 2$

11. $g(-1) = -4$

13. $f(p) = -3p + 5$

15. $g(-x) = -x^2 - 2x - 1$

17. $f(a + 1) = -3a + 2$

19. $g(x - 1) = -x^2 + 4x - 4$

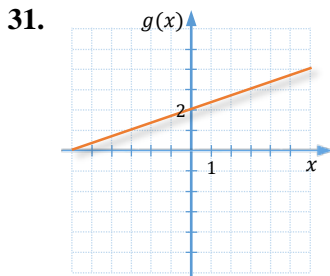
21. $f(2 + h) = -3h - 1$

23. $g(a + h) = -a^2 - 2ah - h^2 + 2a + 2h - 1$

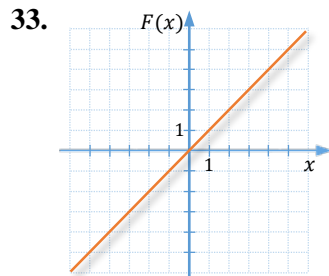
25. $f(3) - g(3) = 0$

27. $3g(x) + f(x) = -3x^2 + 3x + 2$

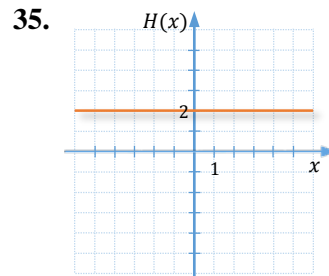
29. line; 4; $-2x + 6$; 4; (1,4)



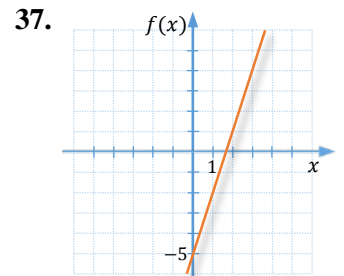
domain = \mathbb{R}
range = \mathbb{R}



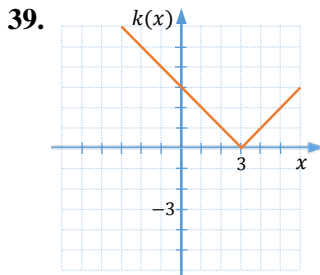
domain = \mathbb{R}
range = \mathbb{R}



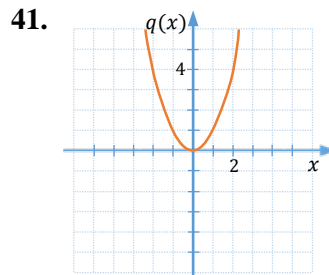
domain = \mathbb{R}
range = $\{2\}$



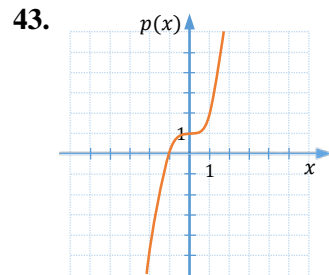
domain = \mathbb{R}
range = \mathbb{R}



domain = \mathbb{R}
range = $[0, \infty)$



domain = \mathbb{R}
range = $[0, \infty)$



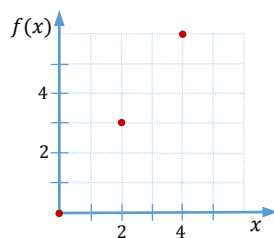
domain = \mathbb{R}
range = \mathbb{R}

45. a.

x	$f(x)$
0	0
2	3.00
4	6.00

b. $f(x) = 1.5x$

c.



A14

47. a. $C(d) = 24.6d + 18.8$ b. $C(4) = 117.20$; The cost of renting the car for 4 days is \$117.20.
c. $d = 7$
49. a. $t \in [0,20]$; $f(t) \in [0,600]$ b. 5 minutes; 10 minutes c. 600 meters
d. $f(15) = 300$; In 15 minutes, the person is 300 meters from home.
51. The height of water in the bathtub decreases quickly, then remains constant, and finally increases slowly until it reaches half of the original height.