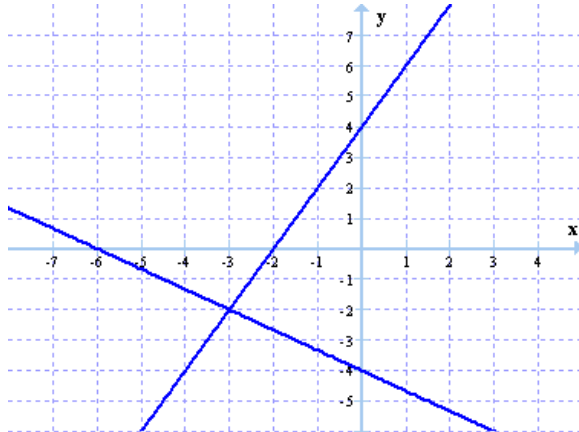


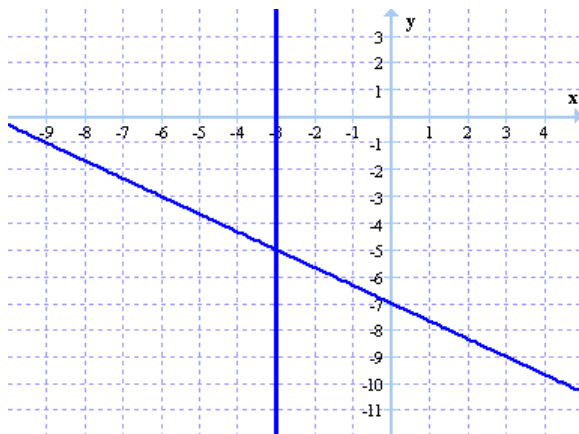
Section 3.3 Solving Systems of Linear Equations in Two Variables Graphically and Numerically

1. The graph of a system of linear equations is given below.



Which of the following is the solution to the system?

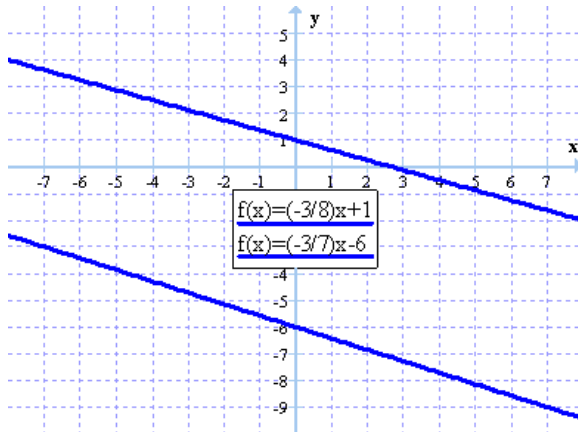
- (a) $(-237, 318)$
 - (b) $(-3, -2)$
 - (c) $(-6, 0)$
 - (d) No solution
 - (e) Infinitely many solutions
2. The graph of a system of linear equations is given below.



Which of the following is the solution to the system?

- (a) $(-3, -5)$
- (b) $(-3, -7)$
- (c) No solution
- (d) Infinitely many solutions

3. The graph of a system of linear equations is given below, along with the equations themselves.



Which of the following is the solution to the system?

- (a) $(0, -6)$
- (b) $(0, 1)$
- (c) $(3, 0)$
- (d) $(-392/3, 50)$
- (e) No solution
- (f) Infinitely many solutions

4. A table of values for a system of linear equations is given below.

x	-8	-6	-4	-2	0	2	4	6
y_1	-6	-3	0	3	6	9	12	15
y_2	2	1	0	-1	-2	-3	-4	-5

Which of the following is the solution to the system?

- (a) $(0, 0)$
- (b) $(-4, 0)$
- (c) $(0, 6, -2)$
- (d) No solution

(e) Infinitely many solutions

5. A table of values for a system of linear equations is given below.

x	-2	-1	0	1	2	3	4	5
y_1	-3	-1	1	3	5	7	9	11
y_2	5	3	1	-1	-3	-5	-7	-9

Which of the following is the solution to the system?

- (a) $(0, 1)$
- (b) $(-1, -1)$
- (c) $(-1, 3)$
- (d) No solution
- (e) Infinitely many solutions

6. A table of values for a system of linear equations is given below.

x	-2	-1	0	1	2	3	4	5
y_1	0	-1	-2	-3	-4	-5	-6	-7
y_2	-10	-9	-8	-7	-6	-5	-4	-3

Which of the following is the solution to the system?

- (a) $(-5, -5)$
- (b) $(3, -5)$
- (c) $(3, -5, -5)$
- (d) No solution
- (e) Infinitely many solutions

7. A table of values for a system of linear equations is given below.

x	-4	-3	-2	-1	0	1	2	3
y_1	5	5	5	5	5	5	5	5
y_2	-4	-3	-2	-1	0	1	2	3

Which of the following is the solution to the system?

- (a) $(-4, 5)$

- (b) (0, 0)
- (c) (5, 5)
- (d) No solution
- (e) Infinitely many solutions

8. A table of values for a system of linear equations is given below.

x	4	7	10	13	16	19	22	25
y_1	3	0	-3	-6	-9	-12	-15	-18
y_2	3	0	-3	-6	-9	-12	-15	-18

Which of the following is the solution to the system?

- (a) (4, 3)
- (b) (0, 0)
- (c) No solution
- (d) Infinitely many solutions

9. Which of the following ordered pairs is a solution to the system

$$f(x) = \begin{cases} -2x + 3y = 11 \\ -2x + 2y = 4 \end{cases} ?$$

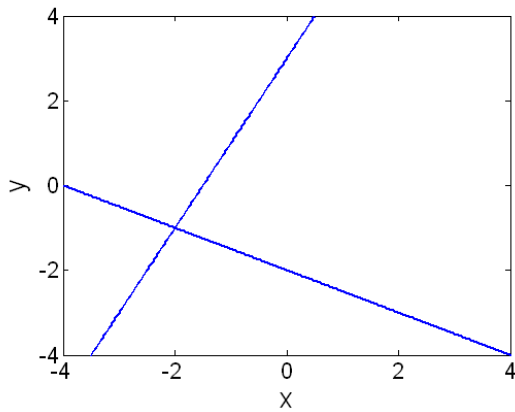
- (a) (-4, 1)
- (b) (1, 3)
- (c) (5, 7)
- (d) (-1, 3)

10. What is the solution to the following system of equations?

$$\begin{aligned} 2x + y &= 3 \\ 3x - y &= 7 \end{aligned}$$

- (a) $x = 4$ and $y = -5$
- (b) $x = 4$ and $y = 5$
- (c) $x = 2$ and $y = -1$
- (d) $x = 2$ and $y = 1/2$
- (e) There are an infinite number of solutions to this system.
- (f) There are no solutions to this system.

11. Which of the following systems of equations could be represented in the graph below?



- (a) $3x + 3y = -6, x + 2y = 3$
- (b) $x - y = -5, 2x + y = 4$
- (c) $-8x + 4y = 12, 2x + 4y = -8$
- (d) $-x + 3y = 9, 2x - y = 4$

12. What is the solution to the following system of equations?

$$\begin{aligned} 2x + y &= 3 \\ 4x + 2y &= 6 \end{aligned}$$

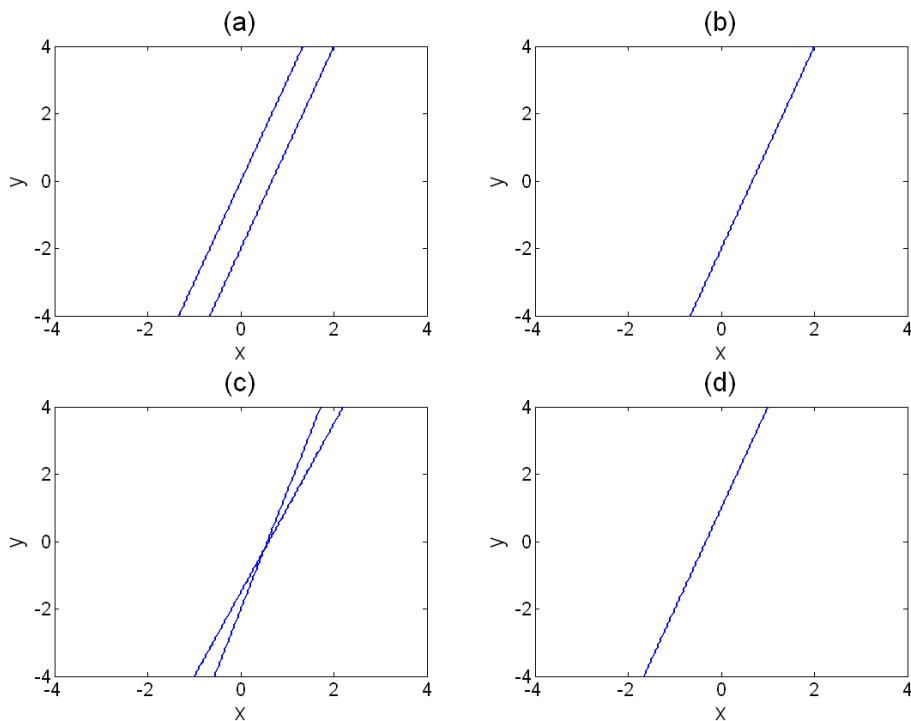
- (a) $x = 0$ and $y = 0$
- (b) $x = 2$ and $y = -1$
- (c) $x = 0$ and $y = 1$
- (d) $x = 0$ and $y = 3$
- (e) There are an infinite number of solutions to this system.
- (f) There are no solutions to this system.

13. Without actually solving, what can you say about the system $f(x) = \begin{cases} y = 3x + 7 \\ y = 3x - 2 \end{cases}$?

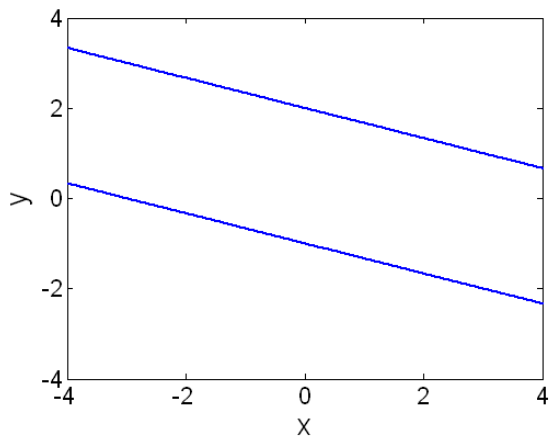
- (a) consistent, one solution
- (b) consistent, dependent (infinitely many solutions)
- (c) inconsistent

14. Which of the graphs below could represent the following linear system?

$$\begin{aligned} 3x - y &= 2 \\ -9x + 3y &= -6 \end{aligned}$$



15. Which of the following systems of equations could be represented in the graph below?



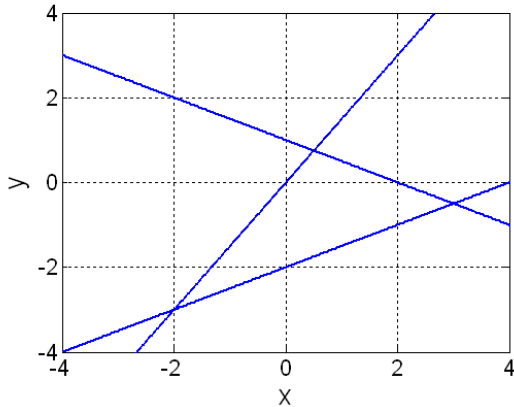
- (a) $-x + 3y = 6, 2x + 6y = -6$
- (b) $-x + 3y = 6, 2x + 6y = 12$
- (c) $x + 3y = 6, 2x + 6y = 12$
- (d) $x + 3y = 6, x + 3y = -3$

16. What is the solution to the following system of equations?

$$\begin{aligned} -3x + 2y &= 4 \\ 12x - 8y &= 10 \end{aligned}$$

- (a) $x = -4/3$ and $y = 0$
- (b) $x = 1/2$ and $y = -1/2$
- (c) $x = 0$ and $y = 2$
- (d) $x = 1/3$ and $y = 5/2$
- (e) There are an infinite number of solutions to this system.
- (f) There are no solutions to this system.

17. We have a system of three linear equations with two unknowns, as plotted in the graph below. How many solutions does this system have?



- (a) 0
- (b) 1
- (c) 2
- (d) 3
- (e) Infinite

18. A system of linear equations could *not* have exactly _____ solutions.

- (a) 0
- (b) 1
- (c) 2
- (d) infinite

(e) All of these are possible numbers of solutions to a system of linear equations.

19. Is the ordered triple $(2, -1, 3)$ a solution of the following linear system?

$$\begin{cases} 5x + 3y - 2z = 1 \\ x - y + z = 6 \\ 2x + 2y - z = -1 \end{cases}$$

- (a) Yes, and I am very confident.
- (b) Yes, but I am not very confident.
- (c) No, but I am not very confident.
- (d) No, and I am very confident.

20. Solve the following linear system.

$$\begin{cases} x + 5y + 3z = 7 \\ 2x + 11y - 4z = 6 \end{cases}$$

- (a) $\{(7z + 47, -2z - 8, z)\}$
- (b) $\{(-53z + 47, 10z - 8, z)\}$
- (c) $\{(47z + 47, -10z - 8, z)\}$
- (d) There is no solution. (The solution set is the empty set.)