

Chapter 7 Review

For each type of question, the achievement level is indicated. Showing work is an important strategy in communicating your knowledge and ideas so please be thorough.

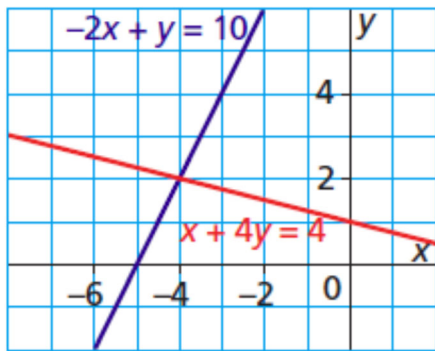
Learning Goal 7.1

Solve systems of linear equations graphically.

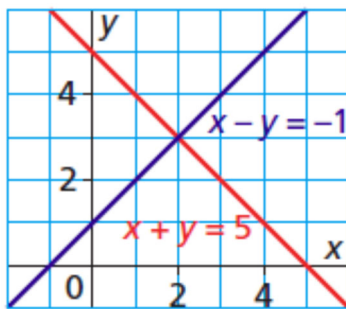
Developing

Find the solution to the systems given in the following graphs.

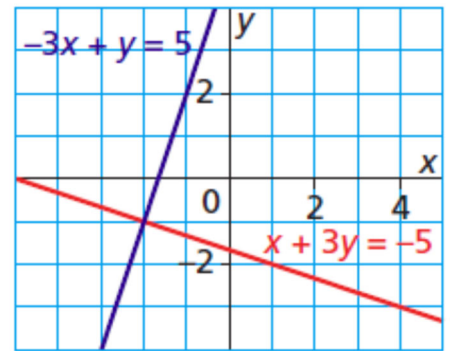
1. $(-4, 2)$



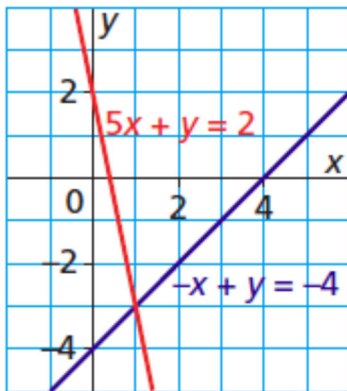
2. $(2, 3)$



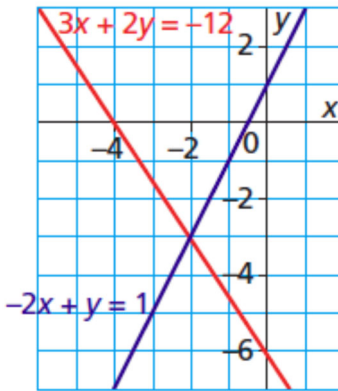
3. $(-2, -1)$



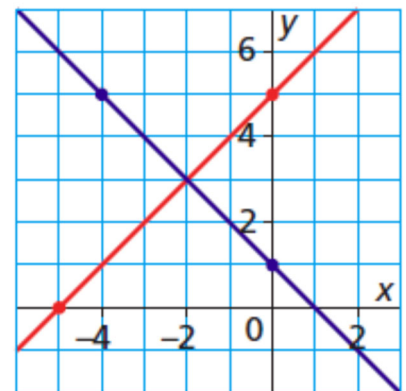
4. $(1, -3)$



5. $(-2, -3)$



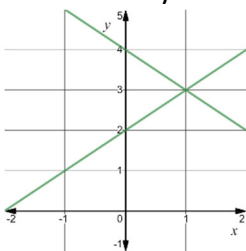
6. $(-2, 3)$



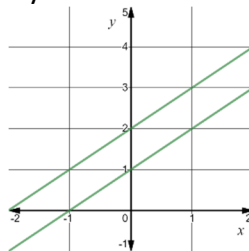
Proficient

Graph a system of linear equations where

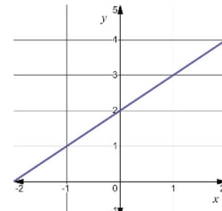
1. The system has exactly one solution.



2. The system has no solutions.



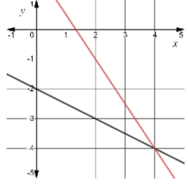
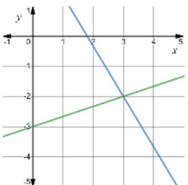
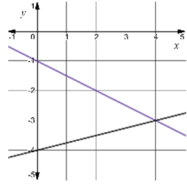
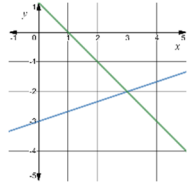
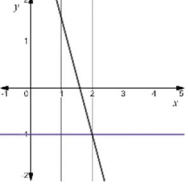
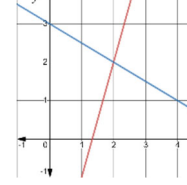
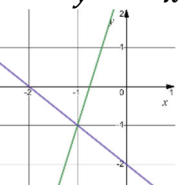
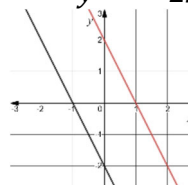
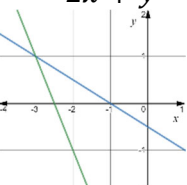
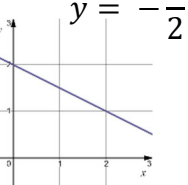
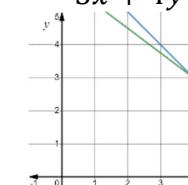
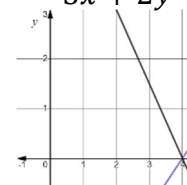
3. The system has an infinite number of solutions.



Chapter 7 Review

Proficient

Graph the following systems of equations, find the solution(s), and verify your answers. (Get some graph paper)

1.	$y = -\frac{x}{2} - 2$ $y = -\frac{3}{2}x + 2$  <p>(4, -4)</p>	2.	$y = -\frac{5}{3}x + 3$ $y = \frac{1}{3}x - 3$  <p>(3, -2)</p>	3.	$y = -\frac{1}{2}x - 1$ $y = \frac{1}{4}x - 4$  <p>(4, -3)</p>
4.	$y = \frac{1}{3}x - 3$ $y = -x + 1$  <p>(3, -2)</p>	5.	$y = -1$ $y = -\frac{5x}{2} + 4$  <p>(2, -1)</p>	6.	$y = 3x - 4$ $y = -\frac{x}{2} + 3$  <p>(2, 2)</p>
7.	$y = 4x + 3$ $y = -x - 2$  <p>(-1, -1)</p>	8.	$y = -2x - 2$ $y = -2x + 2$  <p>No Solutions</p>	9.	$x + 2y = -1$ $2x + y = -5$  <p>(-3, 1)</p>
10.	$3x + 6y = 12$ $y = -\frac{x}{2} + 2$  <p>∞ solutions</p>	11.	$x + y = 7$ $3x + 4y = 24$  <p>(4, 3)</p>	12.	$x - y - 4 = 0$ $3x + 2y = 12$  <p>(4, 0)</p>

Extending

In the system of linear equations $y = 4x + 4$ and $y = 4x + b$, what values of b will result in a system that has

1. No solution. $b \neq 4$	2. One solution. Nothing.	3. Infinite solutions. $b = 4$
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In the system of linear equations $2x + 4y - 5 = 0$ and $ax + 8y - 10 = 0$, what values of a will result in a system that has

1. No solution. $a \neq 4$	2. One solution. Nothing.	3. Infinite solutions. $a = 4$
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Name: _____

Date: _____

Chapter 7 Review

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Learning Goal 7.2

Solve systems of linear equations by substitution.

DevelopingFor which system(s) is $(-1, 5)$ a solution?

$$\frac{3}{4}x + \frac{7}{5}y = \frac{25}{4}$$

$$-\frac{5}{6}x + \frac{2}{3}y = \frac{25}{6}$$

YES

$$8x - 2y = 10$$

$$-7x + y = 12$$

NO

$$3x - 4y = -23$$

$$-2x + 7y = 37$$

YES

$$2x + 5y = 23$$

$$5x - 7y = -45$$

NOFor which system(s) is $(-1, 2)$ a solution?

$$3x + 2y = -1$$

$$2x - y = 1$$

NO

$$3x - y = -1$$

$$-x - y = -1$$

NO

$$-3x + 5y = 13$$

$$4x - 3y = -10$$

YES

$$5x - 3y = 4$$

$$9x + y = 1$$

NO**Proficient**

Solve each system by substitution. Check your solutions.

1.	$y = 4x + 3$ $y = -x - 2$ $(-1, -1)$	2.	$5x + 3y = 9$ $-x + 3y = -9$ $(3, -2)$	3.	$x + 2y + 2 = 0$ $x - 4y = 16$ $(4, -3)$
4.	$y = -2x + 2$ $y = -2x - 2$ No solutions	5.	$y = -1$ $5x + 2y = 8$ $(2, -1)$	6.	$y = 3x - 4$ $x + 2y - 6 = 0$ $(2, 2)$
7.	$x + 2y = -4$ $3x + 2y - 4 = 0$ $(4, -4)$	8.	$x - 3y = 9$ $y = -x + 1$ $(3, -2)$	9.	$x + 2y = -1$ $3x + 6y + 3 = 0$ $\infty \text{ solutions}$
10.	$5x + 4y = 20$ $5x + 6y = 0$ $(12, -10)$	11.	$x + y = 7$ $3x + 4y = 24$ $(4, 3)$	12.	$x - y - 1$ $3x + 2y = 12$ $(4, 0)$

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Chapter 7 Review

Extending

Solve each system by substitution. Check your solutions.

1.	$\begin{aligned} -5x - 8y &= 17 \\ 2x - 7y &= -17 \end{aligned}$	2.	$\begin{aligned} -2x + 6y &= 6 \\ -7x + 8y &= -5 \end{aligned}$	3.	$\begin{aligned} -3x - 4y &= 2 \\ 3x + 3y &= -3 \end{aligned}$
	$(-5, 1)$		$(3, 2)$		$(-2, 1)$

Extending

1. Find the value of two numbers if their sum is 12 and their difference is 4.

x = the bigger number
 y = the smaller number

$$\begin{aligned} x + y &= 12 \\ x - y &= 4 \\ (8, 4) \end{aligned}$$

The bigger number is 8 and the smaller is 4.

2. The difference of two numbers is 3. Their sum is 13. Find the numbers.

x = the bigger number
 y = the smaller number

$$\begin{aligned} x - y &= 3 \\ x + y &= 13 \\ (8, 5) \end{aligned}$$

The bigger number is 8 and the smaller is 5.

3. The school that Sebastian goes to is selling tickets to the school play of which he is the star. On the first day of ticket sales the school sold 3 student tickets and 1 adult ticket for a total of \$38. The school took in \$52 on the second day selling 3 student tickets and 2 adult tickets. Find the price of the adult ticket and the price of the student ticket.

x = the price of a student ticket
 y = the price of an adult ticket

$$\begin{aligned} 3x + y &= 38 \\ 3x + 2y &= 52 \\ (6, 20) \end{aligned}$$

A student ticket costs \$6 and an adult ticket costs \$20.

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Learning Goal 7.3

Solve systems of linear equations by elimination.

Proficient

Solve each system by elimination. Check your solutions.

1.	$-4x - 2y = -12$ $4x + 8y = -24$ (6, -6)	2.	$4x + 8y = 20$ $-4x + 2y = -30$ (7, -1)	3.	$x - y = 11$ $2x + y = 19$ (10, -1)
4.	$-6x + 5y = 1$ $6x + 4y = -10$ (-1, -1)	5.	$5x - y = 9$ $-10x + 2y + 18 = 0$ ∞ solutions	6.	$-3x + 7y = -16$ $-9x + 5y = 16$ (-4, -4)
7.	$-7x + y = -19$ $-2x + 3y = -19$ (2, -5)	8.	$16x - 10y = 10$ $-8x - 6y = 6$ (0, -1)	9.	$8x + 14y = 4$ $-6x - 7y + 10 = 0$ (4, -2)
10.	$-x + 5y + 13 = 0$ $-4x - 15y + 17 = 0$ (8, -1)	11.	$7x + 20y = 14$ $-2x + 10y + 4 = 0$ (2, 0)	12.	$-x + 3y + 9 = 0$ $x - 3y = -6$ No solutions

Extending

1.	$-7x - 8y = 9$ $-4x + 9y + 22 = 0$ (1, -2)	2.	$5x + 4y = -30$ $3x - 9y + 18 = 0$ (-6, 0)	3.	$5x + 4y = -14$ $3x + 6y - 6 = 0$ (-6, 4)
4.	$-4x - 2y = 14$ $-10x + 7y + 25 = 0$ (-1, -5)	5.	$3x - 2y = 2$ $5x - 5y = 10$ (-2, -4)	6.	$-7x - 8y = 9$ $-4x + 9y = -22$ (1, -2)

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Chapter 7 Review

Extending

1. The sum of the digits of a certain two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

x = the tens digit of the original number

y = the ones digit of the original number

$$\begin{aligned}x + y &= 7 \\10x + y + 9 &= 10y + x \\(3, 4)\end{aligned}$$

The original number is 34.

2. Playland is a popular field trip destination. This year the grade 10 class at Alpha and the grade 10 class at Moscrop both planned trips there. The Alpha class rented and filled 8 vans and 8 buses with 240 students. Moscrop rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

x = the number of students in a van

y = the number of students in a bus

$$\begin{aligned}8x + 8y &= 240 \\4x + y &= 54 \\(8, 22)\end{aligned}$$

Buses can hold 22 students and vans can hold 8 students.

3. Natasha's school is selling tickets to her year end dance performance. On the first day of ticket sales the school sold 3 student tickets and 9 adult tickets for a total of \$75. The school took in \$67 on the second day by selling 8 student tickets and 5 adult tickets. What is the price of each type of ticket?

x = the cost of an adult ticket

y = the cost of a student ticket

$$\begin{aligned}3x + 9y &= 75 \\8x + 5y &= 67 \\(4, 7)\end{aligned}$$

The student tickets are \$4 and the adult tickets are \$7.