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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.
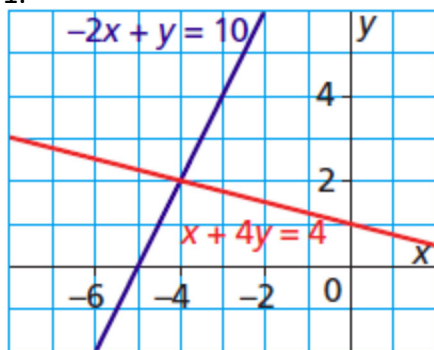
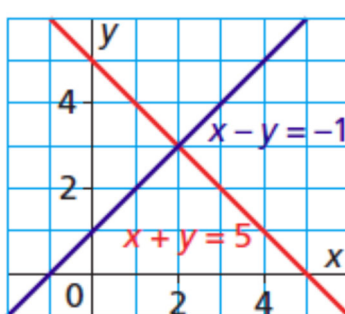| **Learning Goal 7.1**	Solve systems of linear equations graphically.

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

1.

$-2x + y = 10$

$x + 4y = 4$

2.

$x - y = -1$

$x + y = 5$

3.

$-3x + y = 5$

$x + 3y = -5$

4.

$5x + y = 2$

$-x + y = -4$

5.

$3x + 2y = -12$

$-2x + y = 1$
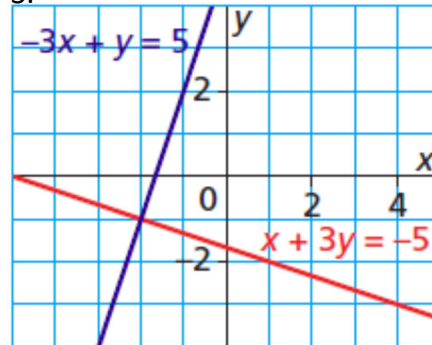
6.

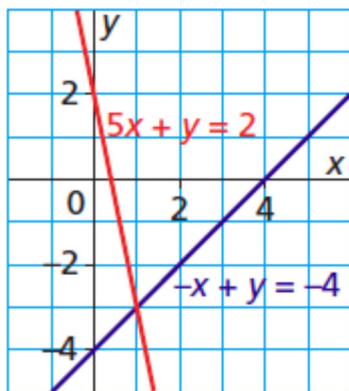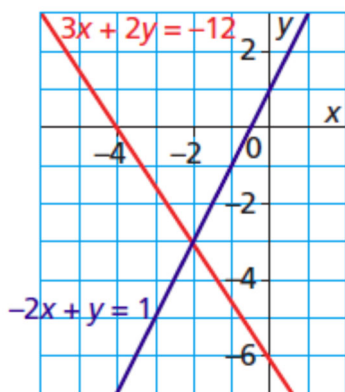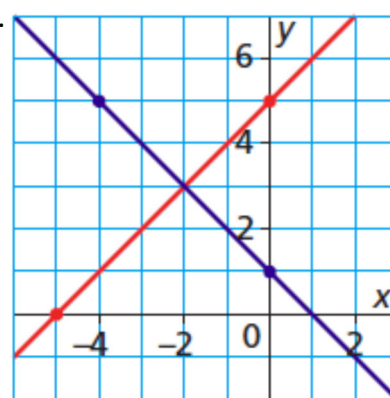| **Proficient**		
Graph a system of linear equations where		
1. The system has exactly one solution.	2. The system has no solutions.	3. The system has an infinite number of solutions.

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Proficient						
Graph the following systems of equations, find the solution(s), and verify your answers. (Get some graph paper)						
1.	$y = -\dfrac{x}{2} - 2$ $y = -\dfrac{3}{2}x + 2$	2.	$y = -\dfrac{5}{3}x + 3$ $y = \dfrac{1}{3}x - 3$	3.	$y = -\dfrac{1}{2}x - 1$ $y = \dfrac{1}{4}x - 4$	
4.	$y = \dfrac{1}{3}x - 3$ $y = -x + 1$	5.	$y = -1$ $y = -\dfrac{5x}{2} + 4$	6.	$y = 3x - 4$ $y = -\dfrac{x}{2} + 3$	
7.	$y = 4x + 3$ $y = -x - 2$	8.	$y = -2x - 2$ $y = -2x + 2$	9.	$x + 2y = -1$ $2x + y = -5$	
10.	$3x + 6y = 12$ $y = -\dfrac{x}{2} + 2$	11.	$x + y = 7$ $3x + 4y = 24$	12.	$x - y - 1$ $3x + 2y = 12$	

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.	2. One solution.	3. An infinite number of solutions.
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.	2. One solution.	3. An infinite number of solutions.

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Learning Goal 7.2	Solve systems of linear equations by substitution.

Developing			
For which system(s) is(are) (-1, 5) a solution?			
$\frac{3}{4}x + \frac{7}{5}y = \frac{25}{4}$ $-\frac{5}{6}x + \frac{2}{3}y = \frac{25}{6}$	$8x - 2y = 10$ $-7x + y = 12$	$3x - 4y = -23$ $-2x + 7y = 37$	$2x + 5y = 23$ $5x - 7y = -45$
For which system(s) is(are) (-1, 2) a solution?			
$3x + 2y = -1$ $2x - y = 1$	$3x - y = -1$ $-x - y = -1$	$-3x + 5y = 13$ $4x - 3y = -10$	$5x - 3y = 4$ $9x + y = 1$

Proficient					
Solve each system by substitution. Check your solutions.					
1.	$y = 4x + 3$ $y = -x - 2$	2.	$5x + 3y = 9$ $-x + 3y = -9$	3.	$x + 2y + 2 = 0$ $x - 4y = 16$
4.	$y = -2x + 2$ $y = -2x - 2$	5.	$y = -1$ $5x + 2y = 8$	6.	$y = 3x - 4$ $x + 2y - 6 = 0$
7.	$x + 2y = -4$ $3x + 2y - 4 = 0$	8.	$x - 3y = 9$ $y = -x + 1$	9.	$x + 2y = -1$ $3x + 6y + 3 = 0$
10.	$5x + 4y = 20$ $5x + 6y = 0$	11.	$x + y = 7$ $3x + 4y = 24$	12.	$x - y - 1$ $3x + 2y = 12$

Extending					
Solve each system by substitution. Check your solutions.					
1.	$-5x - 8y = 17$ $2x - 7y = -17$	2.	$-2x + 6y = 6$ $-7x + 8y = -5$	3.	$-3x - 4y = 2$ $3x + 3y = -3$

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Extending
1. Find the value of two numbers if their sum is 12 and their difference is 4.
2. The difference of two numbers is 3. Their sum is 13. Find the numbers.
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 child ticket.

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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.	$-4x - 2y = -12$ $4x + 8y = -24$	2.	$4x + 8y = 20$ $-4x + 2y = -30$	3.	$x - y = 11$ $2x + y = 19$
4.	$-6x + 5y = 1$ $6x + 4y = -10$	5.	$5x - y = 9$ $-10x + 2y + 18 = 0$	6.	$-3x + 7y = -16$ $-9x + 5y = 16$
7.	$-7x + y = -19$ $-2x + 3y = -19$	8.	$16x - 10y = 10$ $-8x - 6y = 6$	9.	$8x + 14y = 4$ $-6x - 7y + 10 = 0$
10.	$-x + 5y + 13 = 0$ $-4x - 15y + 17 = 0$	11.	$7x + 20y = 14$ $-2x + 10y + 4 = 0$	12.	$-x + 3y + 9 = 0$ $x - 3y = -6$

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

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?
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.
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?