

ALEKS® 101 Mock Final #1

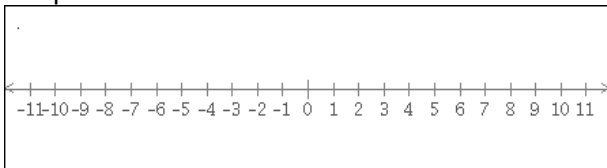
Beginning and Intermediate Algebra Combined / MATH 101 - Fall 2014 – 504 (Prof. Miller)

Student Name/ID:

1. Solve the compound inequality.

$$-12 \leq 4x + 4 < 16$$

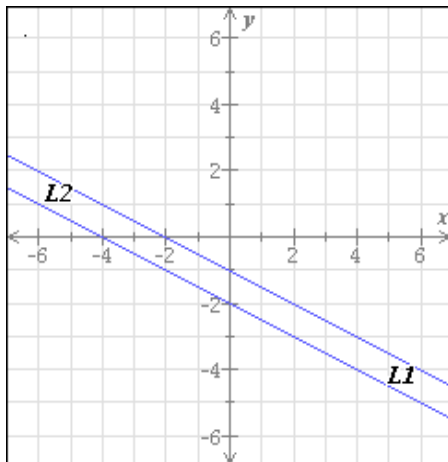
Graph the solution on the number line.



2. For each system of linear equations shown below, classify the system as "consistent dependent," "consistent independent," or "inconsistent." Then, answer the question about its solutions.

$$L1: y = \frac{-1}{2}x - 1$$

$$L2: y = \frac{-1}{2}x - 2$$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

- a unique solution:

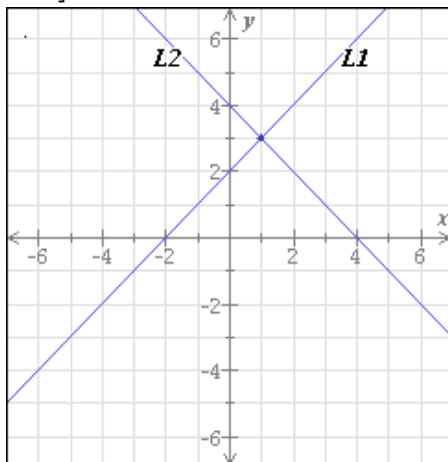
Solution: (,)

- no solution

- infinitely many solutions

$$L1: y = x + 2$$

$$L2: y = -x + 4$$



This system of equations is:

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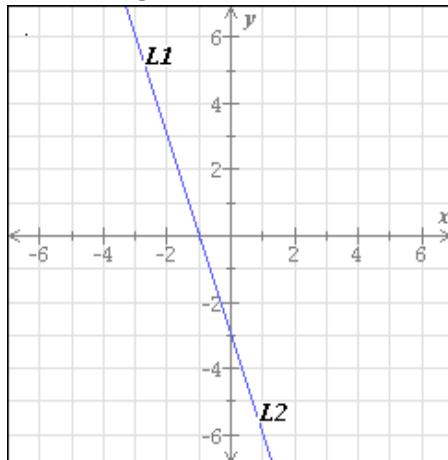
Solution: (\quad , \quad)

- no solution

- infinitely many solutions

L1: $y = -3x - 3$

L2: $3x + y = -3$



This system of equations is:

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Solution: (\quad , \quad)

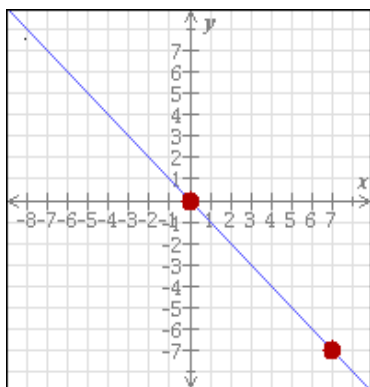
- no solution

- infinitely many solutions

3. Simplify the following expression.

$$9x^2 - 4 - 10x^2 + 10 + 3x$$

4. Write an equation of the line below.



5. Solve for v

$$-4v = -20$$

Simplify your answer as much as possible.

6. Find the value of $9w - 5$ given that $-4w - 4 = 4$

Simplify your answer as much as possible.

7. Leila purchased a prepaid phone card for \$25. Long distance calls cost 23 cents a minute using this card. Leila used her card only once to make a long distance call. If the remaining credit on her card is \$14.65, how many minutes did her call last?

8. Find the slope of the line passing through the points $(-9, -6)$ and $(-4, 5)$

9. Evaluate the following.

$$45 \div (-5) = \square$$

$$-6 \times (-5) = \square$$

10. Translate this sentence into an equation.

60 is the product of Rick's score and 4

Use the variable r to represent Rick's score.

11. Add.

$$\frac{9}{10} + \frac{3}{4}$$

Write your answer as a fraction in simplest form.

12. Solve for u

$$|u| - 16 = -8$$

13. Evaluate.

$$4 + 2 \cdot 6^2$$

14. A wire is first bent into the shape of a rectangle with width 11 cm and length 13 cm. Then the wire is unbent and reshaped into a triangle. If each side of the triangle has equal length, what is this length?

15. Use substitution to solve the system.

$$\begin{aligned}y &= 3x - 4 \\ 4x + 3y &= 27\end{aligned}$$

$$x = \boxed{}$$

$$y = \boxed{}$$

16. Find an ordered pair (x, y) that is a solution to the equation.

$$2x - y = 3$$

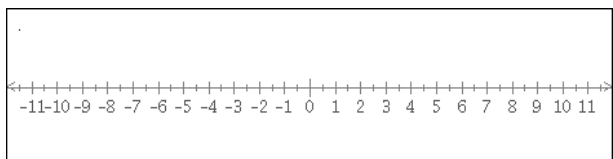
17. Evaluate.

$$(-9)^2 = \boxed{}$$

$$(-4)^3 = \boxed{}$$

18. Graph the solution to the inequality on the number line.

$$|u - 2| > 6$$



19. Find the value of $2u - 6$ given that $-3u - 5 = 7$

Simplify your answer as much as possible.

20. Solve for u

$$96 = 4u$$

Simplify your answer as much as possible.

21. Solve for u

$$78 - u = 168$$

22. Find an ordered pair (x, y) that is a solution to the equation.

$$x - 6y = 6$$

23. Solve the inequality for y

$$\frac{5}{8}y - 1 > 6y - \frac{3}{2}$$

Simplify your answer as much as possible.

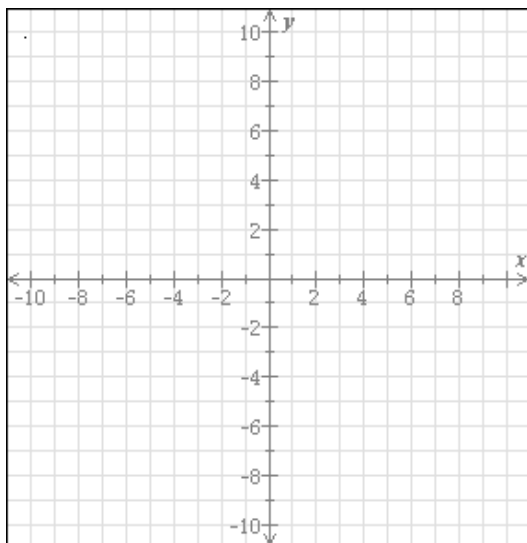
24. Hong bought a desktop computer and a laptop computer. Before finance charges, the laptop cost \$400 less than the desktop. He paid for the computers using two different financing plans. For the desktop the interest rate was 7.5% per year, and for the laptop it was 8% per year. The total finance charges for one year were \$371 How much did each computer cost before finance charges?

25. Solve for w

$$|w| - 21 = -14$$

26. Graph the line.

$$y = -\frac{1}{4}x + 1$$



27. What number is equal to $\sqrt{9}$?

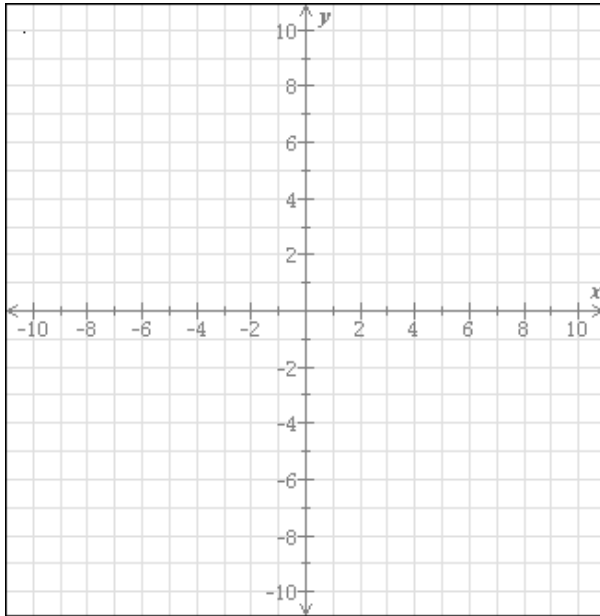
28. The equation of a line is given below.

$$-3x - 5y = -15$$

Find the slope and the y -intercept.
Then use them to graph the line.

slope: _____

y -intercept: _____

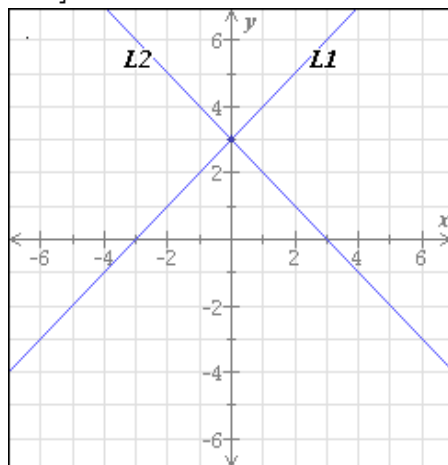


29.

For each system of linear equations shown below, classify the system as "consistent dependent," "consistent independent," or "inconsistent." Then, answer the question about its solutions.

L1: $y = x + 3$

L2: $y = -x + 3$



This system of equations is:

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This means the system has:

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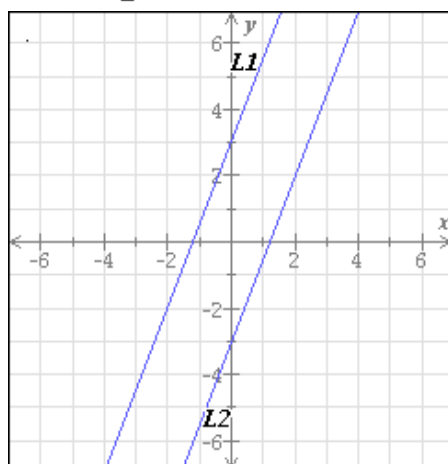
Solution: (\quad , \quad)

- no solution

- infinitely many solutions

L1: $y = \frac{5}{2}x + 3$

L2: $y = \frac{5}{2}x - 3$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

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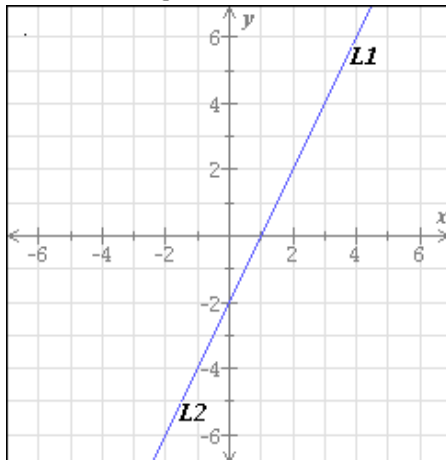
Solution: (\quad, \quad)

- no solution

- infinitely many solutions

$$L1: y = 2x - 2$$

$$L2: -2x + y = -2$$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

- a unique solution:

Solution: (\quad, \quad)

- no solution

- infinitely many solutions

30. Use substitution to solve the system.

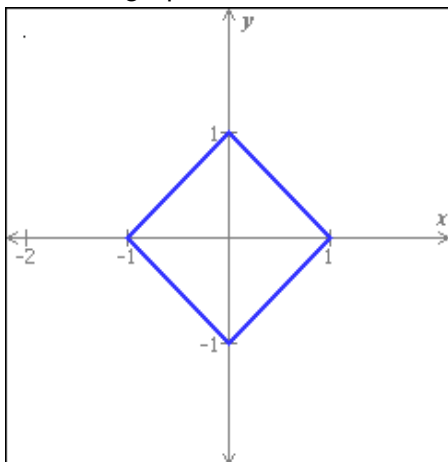
$$5x + 4y = 5$$

$$x = 3y - 18$$

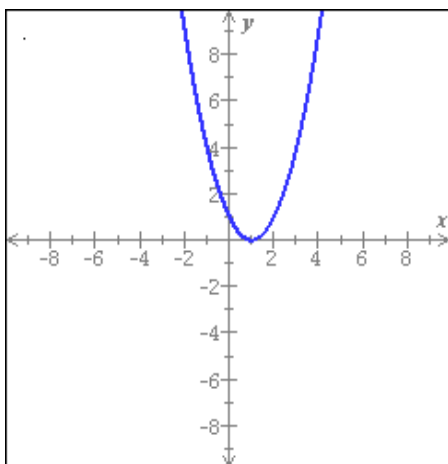
$$x = \boxed{}$$

$$y = \boxed{}$$

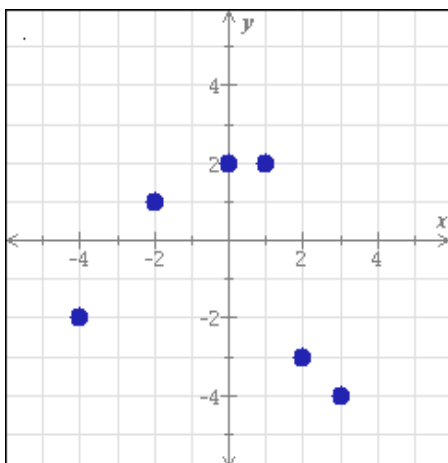
31. For each graph below, state whether it represents a function.



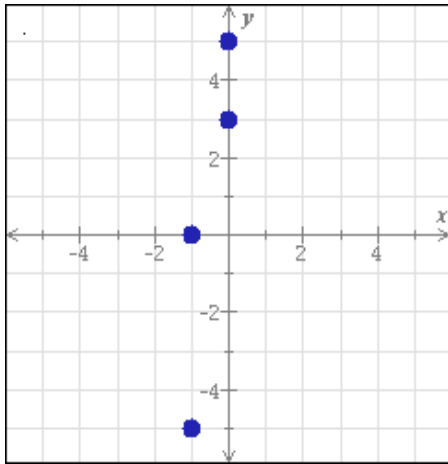
Function?:
Yes No



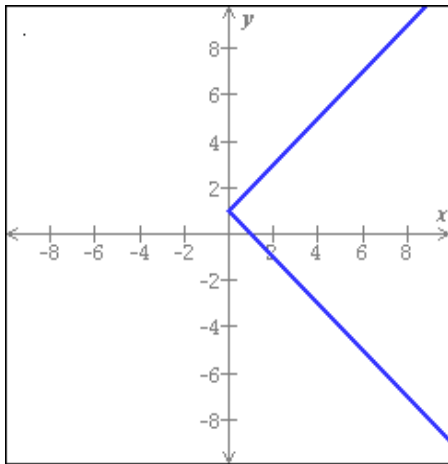
Function?:
Yes No



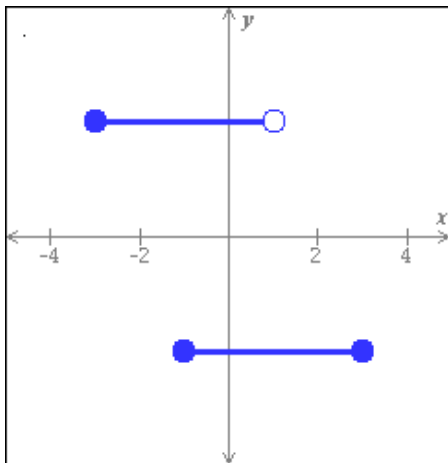
Function?:
Yes No



Function?:
Yes No



Function?:
Yes No



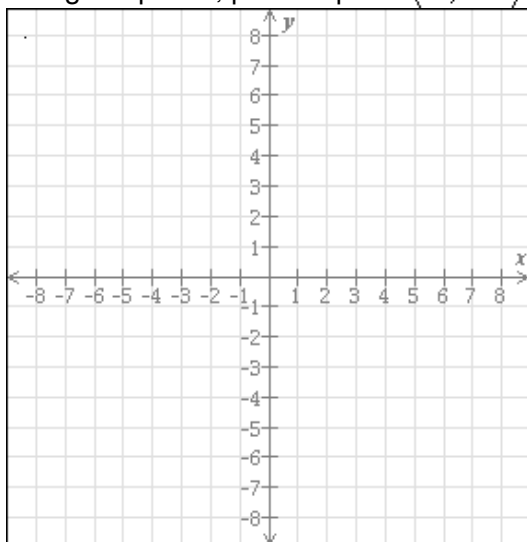
Function?:
Yes No

32. Solve the following system of equations.

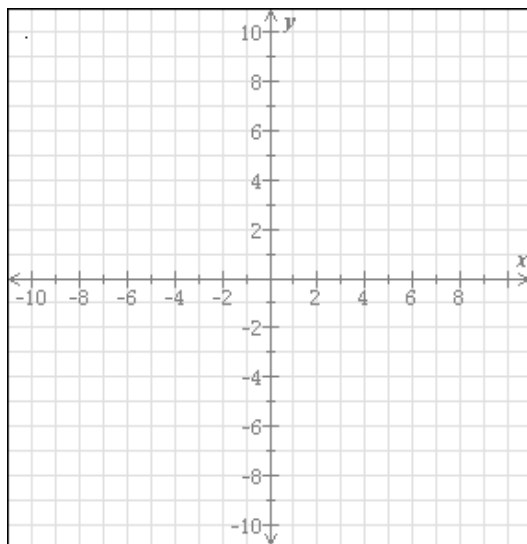
$$7x - 2y = -9$$

$$4x - 5y = -9$$

33. Using the pencil, plot the point $(4, -3)$



34. Graph the line whose y -intercept is -9 and whose x -intercept is -2



35. A movie club surveyed 250 high school students. The students were asked how often they go to the movies and whether they prefer action movies or dramas. Their responses are summarized in the following table.

	Twice a month or less	Three times a month or more
Action	78	32
Drama	87	53

- (a) What percentage of the students go to the movies three times a month or more?
- (b) What percentage of the students prefer dramas ?

36. Use the distributive property to remove the parentheses.

$$-5(-y - 4w + 3)$$

37. Consider the line $-9x - 6y = -4$

What is the slope of a line perpendicular to this line?

What is the slope of a line parallel to this line?

38. A pet store has 7 cats. Here are their weights (in pounds).

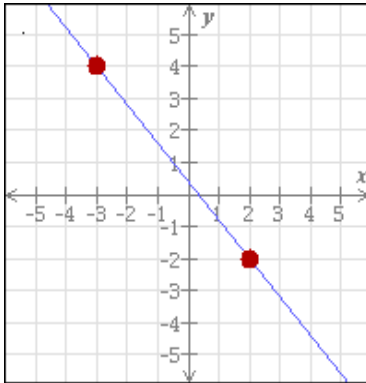
16, 7, 15, 15, 16, 13, 7

Find the mean weight of these cats.

If necessary, round your answer to the nearest tenth.

39. A theater group made appearances in two cities. The hotel charge before tax in the second city was \$1500 higher than in the first. The tax in the first city was 4% and the tax in the second city was 8%. The total hotel tax paid for the two cities was \$810. How much was the hotel charge in each city before tax?

40. Find the slope of the line graphed below.



41. Lamar rented a truck for one day. There was a base fee of \$20.99 and there was an additional charge of 76 cents for each mile driven. Lamar had to pay \$178.31 when he returned the truck. For how many miles did he drive the truck?

42. Find the x -intercept and y -intercept of the line.

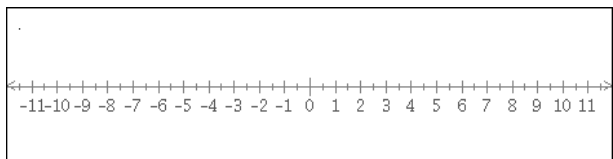
$$6x - 8y = -15$$

x -intercept: _____

y -intercept: _____

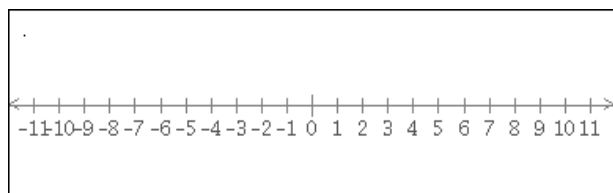
43. Graph the solution to the inequality on the number line.

$$|w + 4| < 5$$



44. Graph the inequality below on the number line.

$$b < -9$$



45. Solve for x

$$|x| - 16 = -8$$

46. At the city museum, child admission is \$5.30 and adult admission is \$8.80. On Wednesday, 154 tickets were sold for a total sales of \$1050.70. How many adult tickets were sold that day?

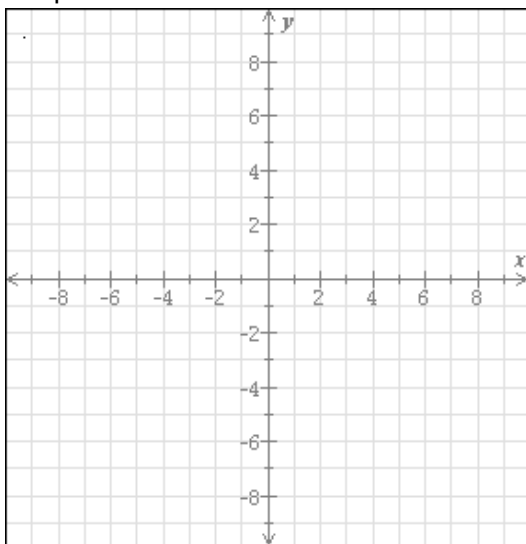
47. Round 0.487 to the nearest hundredth.

48. Use the distributive property to remove the parentheses.

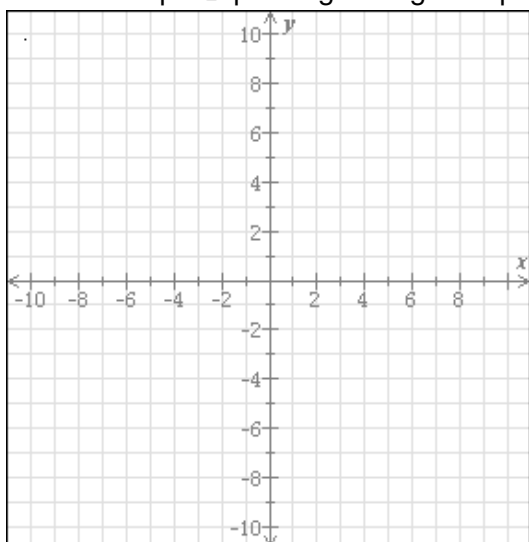
$$-8(-2x + 4u - 5)$$

49. What is 20% of 69?

50. Graph the line $x = -1$



51. Graph the line with slope 3 passing through the point $(2, -1)$



52. Tom is going to rent a truck for one day. There are two companies he can choose from, and they have the following prices.

Company A charges \$100 and allows unlimited mileage.

Company B has an initial fee of \$65 and charges an additional \$0.70 for every mile driven.

For what mileages will Company A charge less than Company B?

Use m for the number of miles driven, and solve your inequality for m

53. The sets A and E are given below.

$$A = \{ 1, 2, 3, 4, 6 \}$$

$$E = \{ 0, 2, 3, 8 \}$$

Find the union of A and E

Find the intersection of A and E

Write your answers using set notation.

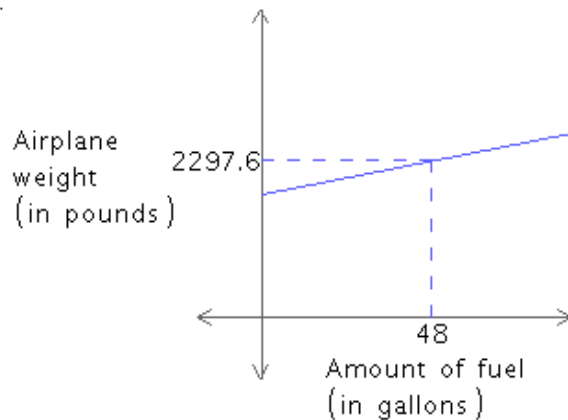
54. Solve the following proportion for v

$$\frac{v}{7} = \frac{8}{3}$$

Round your answer to the nearest tenth.

55. Suppose that the weight (in pounds) of an airplane is a linear function of the total amount of fuel (in gallons) in its tank. When graphed, the function gives a line with a slope of 6.2. See the figure below.

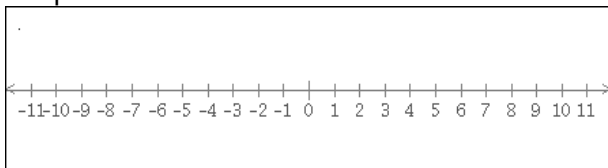
With 48 gallons of fuel in its tank, the airplane has a weight of 2297.6 pounds. What is the weight of the plane with 77 gallons of fuel in its tank?



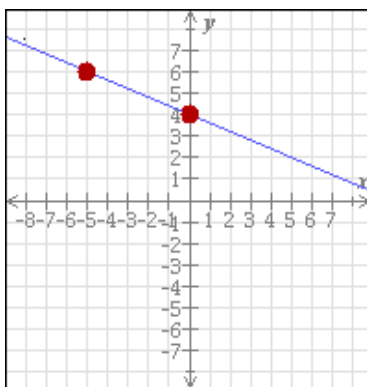
56. Solve the compound inequality.

$$-4 \leq 4x - 4 \leq 16$$

Graph the solution on the number line.



57. Write an equation of the line below.

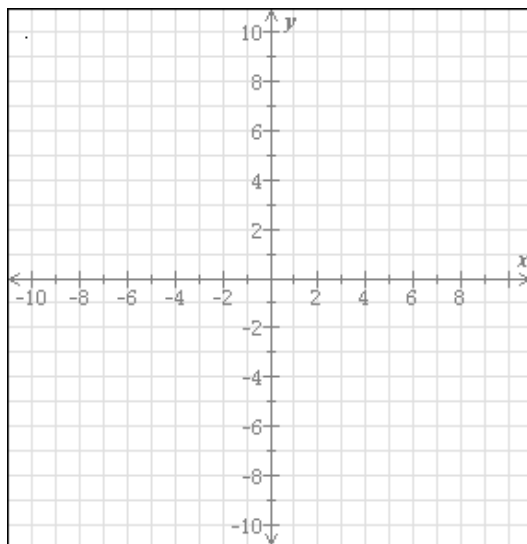


58. Solve the following proportion for y

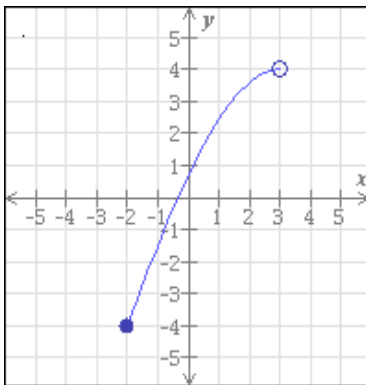
$$\frac{17}{7} = \frac{y}{5}$$

Round your answer to the nearest tenth.

59. Graph the line whose x -intercept is -1 and whose y -intercept is 3

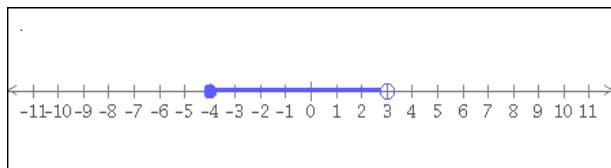


60. The entire graph of the function h is shown in the figure below.
Write the domain and range of h using interval notation.



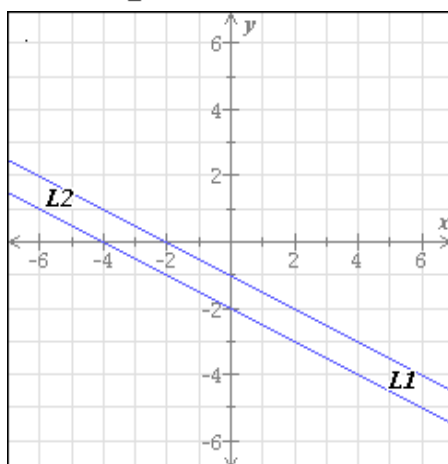
101 Mock Final #1 Answers for class Beginning and Intermediate Algebra Combined / MATH 101 - Fall 2014 – 504

1.



2. L1: $y = \frac{-1}{2}x - 1$

L2: $y = \frac{-1}{2}x - 2$



This system of equations is:

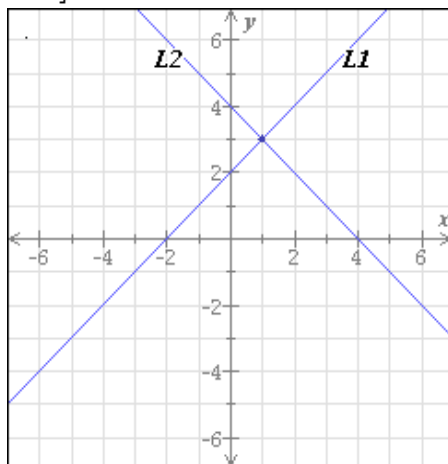
- inconsistent

This means the system has:

- no solution

L1: $y = x + 2$

L2: $y = -x + 4$



This system of equations is:

- consistent independent

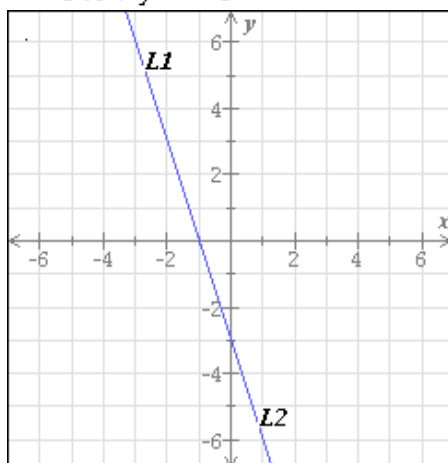
This means the system has:

- a unique solution:

Solution: $(1, 3)$

$$L1: y = -3x - 3$$

$$L2: 3x + y = -3$$



This system of equations is:

- consistent dependent

This means the system has:

- infinitely many solutions

3. $-x^2 + 3x + 6$

4. $y = -x$

5. $v = 5$

6. $9w - 5 = -23$

7. 45 minutes

8. $\frac{11}{5}$

9. $45 \div (-5) = -9$

$$-6 \times (-5) = 30$$

10. $60 = 4r$

11. $\frac{33}{20}$ or $1\frac{13}{20}$

12. $u = 8, -8$

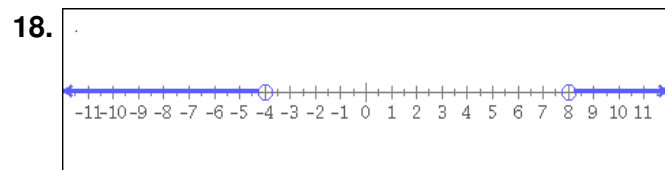
13. 76

14. 16 cm

15. $x = 3$
 $y = 5$

16. One possible answer is $(x, y) = (0, -3)$

17. $(-9)^2 = 81$
 $(-4)^3 = -64$



19. $2u - 6 = -14$

20. $u = 24$

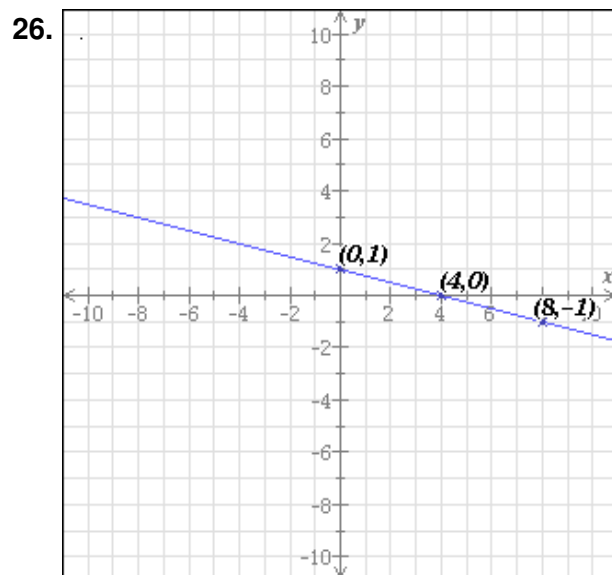
21. $u = -90$

22. One possible answer is $(x, y) = (6, 0)$

23. $y < \frac{4}{43}$

24. Desktop: \$2600
 Laptop: \$2200

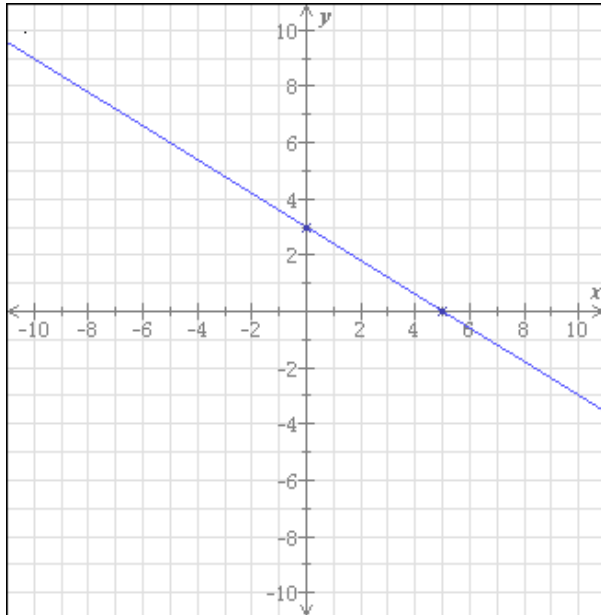
25. $w = 7, -7$



27. 3

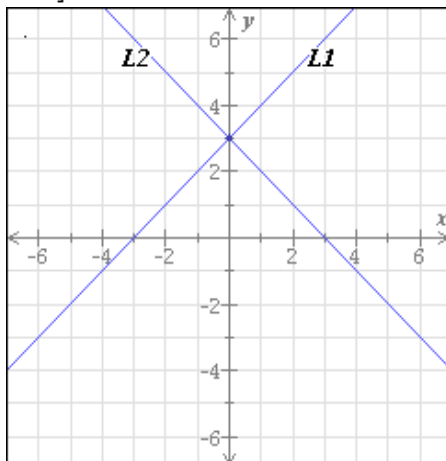
28. slope: $-\frac{3}{5}$

y-intercept: 3



29. L1: $y = x + 3$

L2: $y = -x + 3$



This system of equations is:

- consistent independent

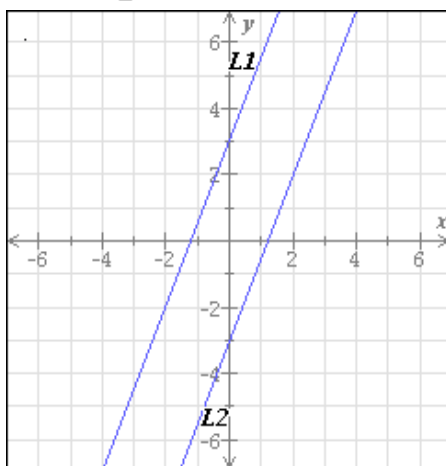
This means the system has:

- a unique solution:

Solution: $(0, 3)$

L1: $y = \frac{5}{2}x + 3$

L2: $y = \frac{5}{2}x - 3$



This system of equations is:

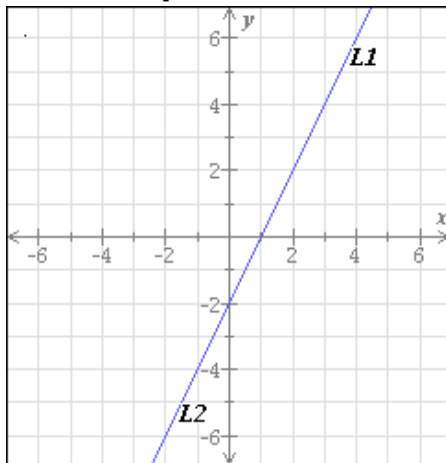
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This means the system has:

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$$L1: y = 2x - 2$$

$$L2: -2x + y = -2$$



This system of equations is:

- consistent dependent

This means the system has:

- infinitely many solutions

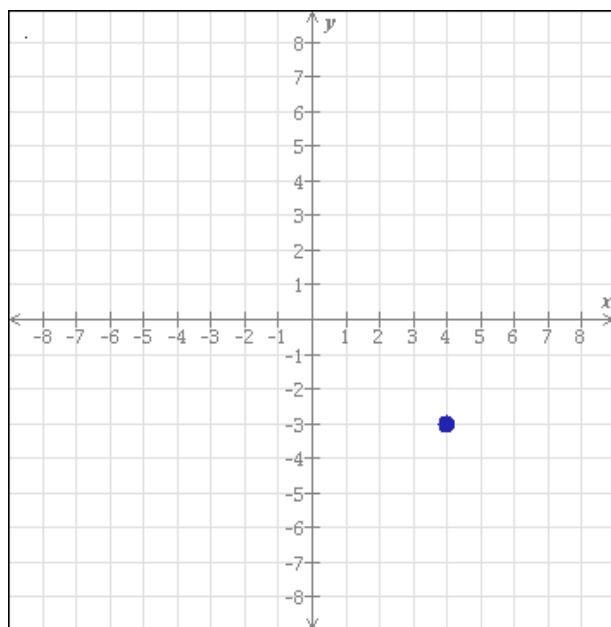
30. $x = -3$
 $y = 5$

31.

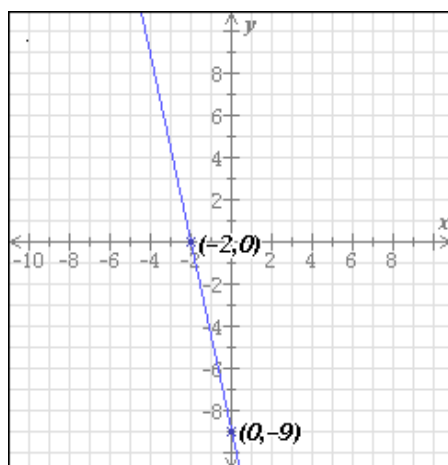
Function? <input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No
Function? <input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No

32. $x = -1$
 $y = 1$

33.



34.



35. (a) 34%

(b) 56%

36. $5y + 20w - 15$

37. Slope of a perpendicular line: $\frac{2}{3}$

Slope of a parallel line: $-\frac{3}{2}$

38. 12.7 pounds

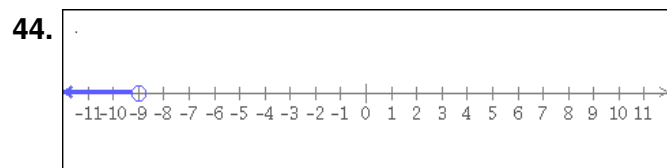
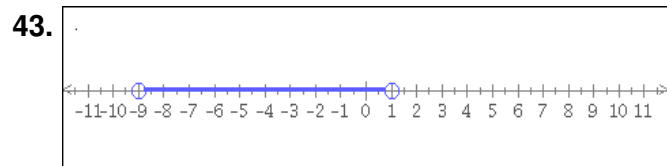
39. First city: \$5750
Second city: \$7250

40. $-\frac{6}{5}$

41. 207 miles

42. x-intercept: $-\frac{5}{2}$

y-intercept: $\frac{15}{8}$



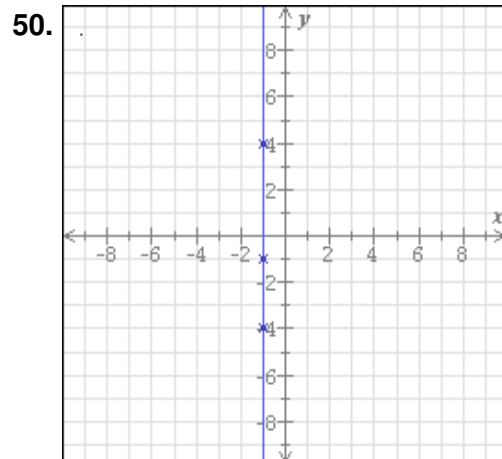
45. $x = 8, -8$

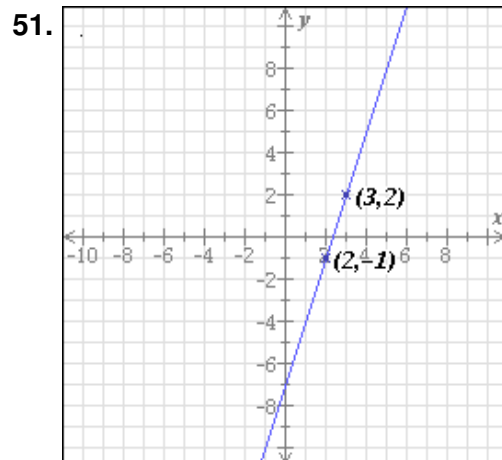
46. 67 tickets

47. 0.49

48. $16x - 32u + 40$

49. 13.8



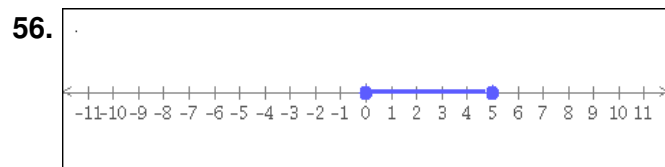


52. $m > 50$

53. $A \cup E = \{0, 1, 2, 3, 4, 6, 8\}$
 $A \cap E = \{2, 3\}$

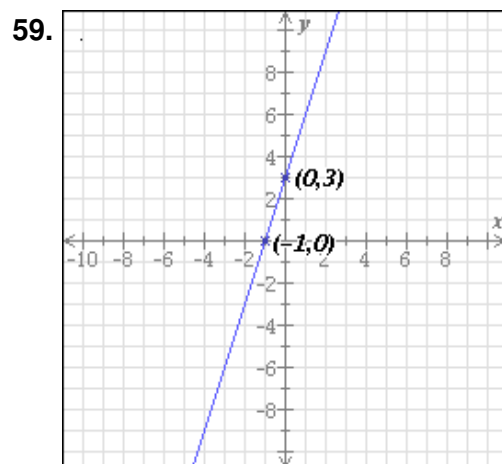
54. $v = 18.7$

55. 2477.4 pounds



57. $y = -\frac{2}{5}x + 4$

58. $y = 12.1$



60. domain = $[-2, 3)$
range = $[-4, 4)$