

Semester 1 Final REVIEW

Date _____ Period _____

Evaluate each using the values given.

1) $z + y^2$; use $y = -3$, and $z = -4$

2) $(x - z) \div 3$; use $x = 5$, and $z = -4$

3) $(p + p) \div m$; use $m = \frac{1}{2}$, and $p = 2$

4) $|q| - p^2$; use $p = 5$, and $q = -3$

Simplify each problem to an equivalent expression.

5) $5k - 8(5k + 8)$

6) $-5(6 + 7x) - 5(x + 1)$

7) $-4 - 9(10a - 6)$

8) $-10 + n - (-9 - 7n)$

Solve for the solution of each equation.

9) $-\frac{7}{10} = -\frac{17}{10} - x$

10) $-\frac{9}{2} = \frac{m}{6}$

11) $\frac{2}{3}(3 + 4n) = 18$

12) $-7.2x + 4.9x = 1.15$

13) $-3.9x + 3.9x = 0$

14) $9 + 7n + 4 + 4n = 8n - 2$

15) $7n + 5 = -1 + 7n$

16) $4 - 6(6 + 7k) = -32 + 3k$

17) $8n - 40 = -5(-3n + 1)$

18) $\frac{r+8}{6} = \frac{r-6}{9}$

19) $\frac{n-6}{n+4} = \frac{8}{2}$

20) $\frac{5}{8} = \frac{n-2}{n}$

21) $|n| - 6 = 1$

22) $1 - 7|n| = -6$

23) $|8x + 5| = 35$

24) $7|10 + n| - 2 = 40$

Solve each equation for the indicated variable.

25) $kx = w - v$, for x

26) $u = a + k - b$, for a

27) $g = 16 - 12a - b$, for a

28) $u = \frac{15x}{2y}$, for x

Write a proportion for the given scenario and solve.

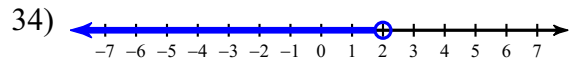
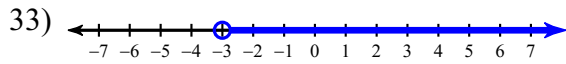
29) Randy can mow the lawn of 4 houses in 50 minutes. At this rate, how many lawns can he mow in 20 minutes?

30) Jeremy can read 10 pages of a book in 25 minutes. How many pages can he read in 45 minutes?

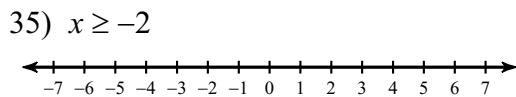
31) Carly can drive 35 miles in 45 minutes. At this rate, how far can she drive in 2 hours?

32) Jenny can bake 55 cupcakes in 1 hour. How many can she bake in 40 minutes?

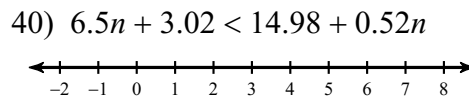
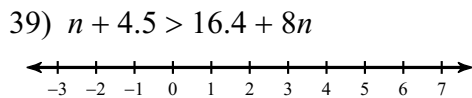
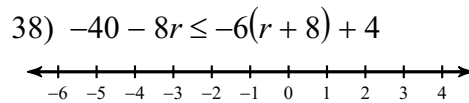
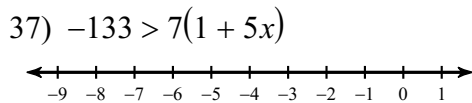
Write an inequality for each graph.



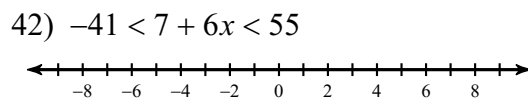
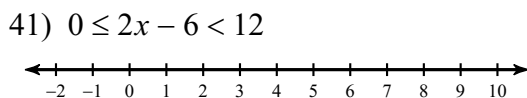
Draw a graph for each inequality.



Solve each inequality and graph its solution.



Solve each compound inequality and graph its solution.



43) How do you know if something is a function?

44) Make a table of ordered pairs that represents a function. Then make one that does NOT represent a function.

Function	Not a function
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45) If $f(x) = -3x + 2$, what is $f(-1)$?

46) If $f(x) = 8 + 0.5x$, what is $f(50)$?

47) The equation represents the height of water in a bucket that is slowly draining.

$$H = -2t + 10$$

- a) What is the independent variable?
- b) What is the dependent variable?
- c) What does the number 10 represent?
- d) What does the number -2 represent?

48) The equation represents the speed of a car as it goes down a steep hill

$$f(t) = 4t + 50$$

- a) What is the independent variable?
- b) What is the dependent variable?
- c) What does the number 50 represent?
- d) What does the number 4 represent?

Write an equation to represent the situation.

49) Jenny must pay \$5 for parking at the fair, and must pay \$1 for every game she plays. Write an equation to represent how much she will pay.

50) A group of kids are going to the bowling alley, and each pair of shoes costs \$3 to rent. They have a \$9 coupon. Write an equation to represent what they will pay.

Find the slope of the line through each pair of points.

51) $(11, -17), (-16, -17)$

52) $(10, -19), (17, -17)$

Find the slope of a line parallel to each given line.

53) $y = -\frac{2}{3}x - 3$

54) $y = \frac{10}{3}x - 5$

Find the slope of a line perpendicular to each given line.

55) $y = \frac{4}{5}x - 1$

56) $y = 2x + 2$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

57) through: $(1, -2)$, slope = -2

58) through: $(-2, -1)$, slope = $-\frac{3}{2}$

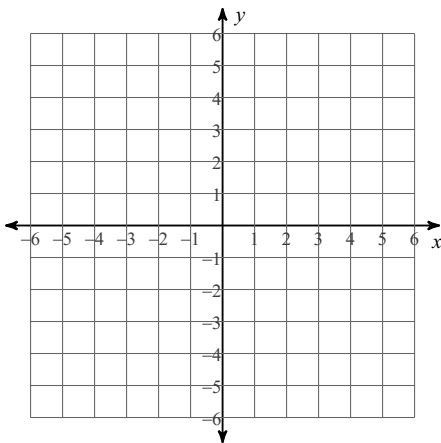
Write the slope-intercept form of the equation of the line through the given points.

59) through: $(0, 4)$ and $(4, 3)$

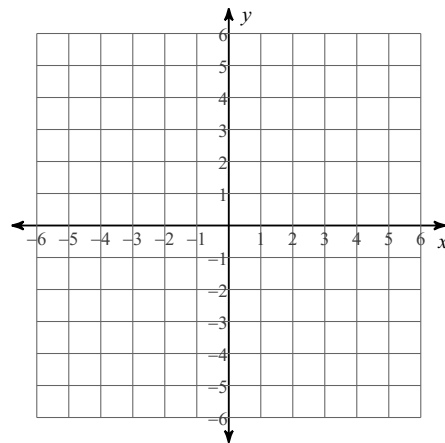
60) through: $(4, 5)$ and $(2, -3)$

Sketch the graph of each line.

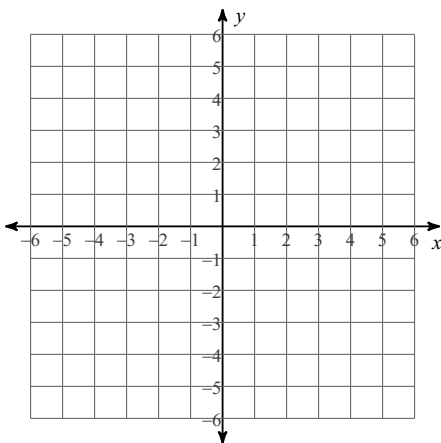
61) $3x + 5y = -15$



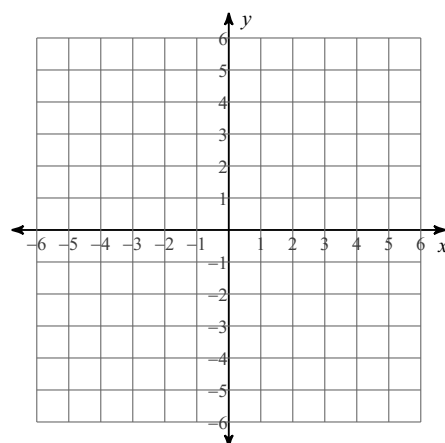
62) $x + 2y = 4$



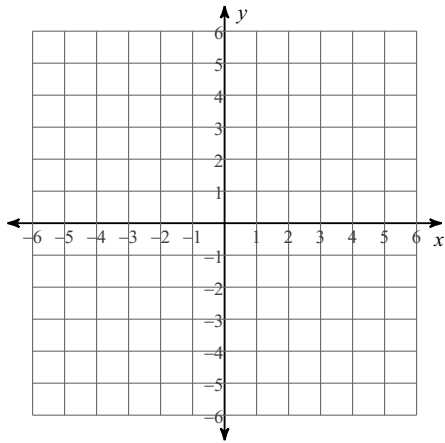
63) $y = -2x - 1$



64) $y = \frac{4}{5}x - 1$

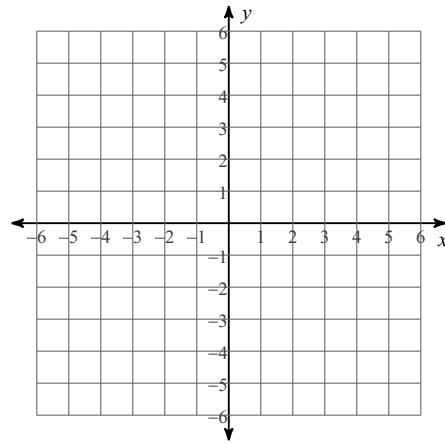


65) $y = -x + 3$

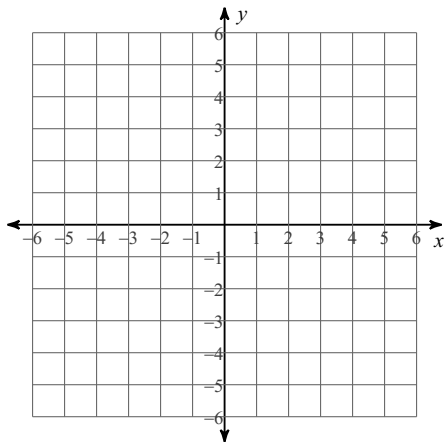


Sketch the graph of each linear inequality.

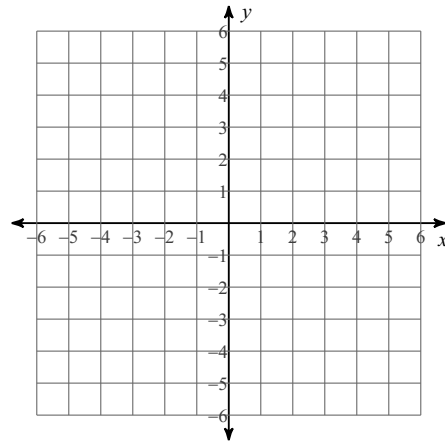
66) $-5y - 20 = -x$



67) $y \leq \frac{3}{5}x - 3$

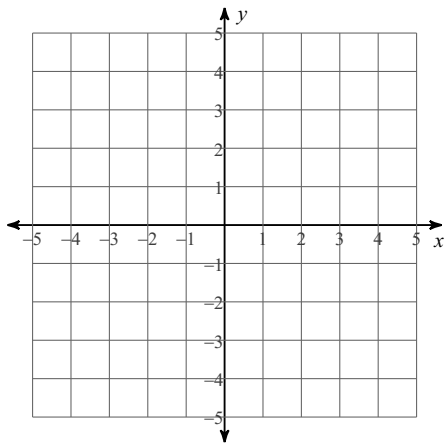


68) $y < 2x + 4$

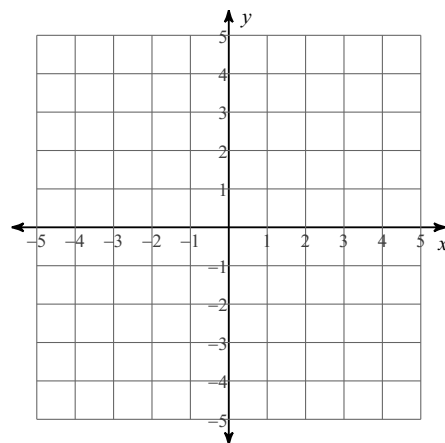


Sketch the solution to each system of inequalities.

69) $y \geq -2x - 1$
 $y \leq 3$



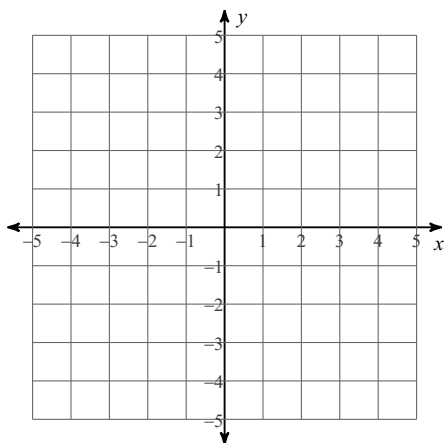
70) $y > -x - 2$
 $y < \frac{2}{3}x + 3$



Solve each system by graphing.

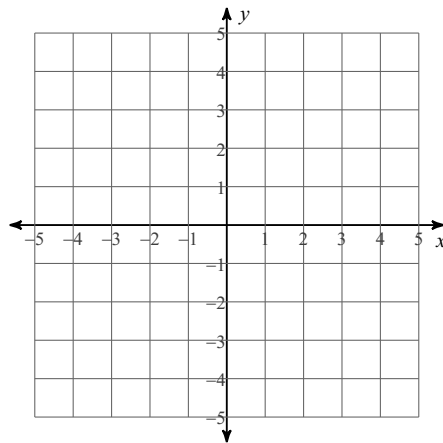
71) $y = \frac{1}{2}x + 1$

$y = -\frac{1}{2}x + 3$



72) $y = \frac{1}{2}x + 2$

$y = 2x - 1$



Solve each system by substitution.

73) $y = x + 1$

$-5x + 8y = 5$

74) $-8x - y = -23$

$3x + y = 8$

Solve each system by elimination.

75) $-7x + 9y = -6$

$x - 2y = 3$

76) $4x - 2y = 4$

$10x + 3y = 26$

77) Beth's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 9 adult tickets and 7 student tickets for a total of \$75. The school took in \$102 on the second day by selling 10 adult tickets and 14 student tickets. Find the price of an adult ticket and the price of a student ticket.

- 78) Shayna and Gabriella each improved their yards by planting rose bushes and ornamental grass. They bought their supplies from the same store. Shayna spent \$108 on 9 rose bushes and 12 bunches of ornamental grass. Gabriella spent \$42 on 3 rose bushes and 6 bunches of ornamental grass. What is the cost of one rose bush and the cost of one bunch of ornamental grass?

Simplify. Your answer should contain only positive exponents.

$$79) \frac{3^2 \cdot 3^3}{3}$$

$$80) \frac{2^3}{2^0 \cdot 2^0}$$

$$81) 4yx^4 \cdot 2x^2y^{-1}$$

$$82) v^{-3} \cdot u^{-3}v^{-4}$$

$$83) (m^3n^{-4})^2$$

$$84) (3v^0)^{-1}$$

$$85) (3a^2)^2$$

$$86) \frac{(2x^0)^4}{2y^{-3}}$$

$$87) \frac{(x^4y^{-1})^3}{x^{-1}y^{-4}}$$

$$88) \frac{2xy^4 \cdot x^4}{(xy^{-3})^{-1}}$$

$$89) \left(\frac{x^2y^{-3} \cdot 2y^{-1}}{x^{-3}} \right)^{-2}$$

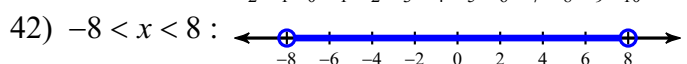
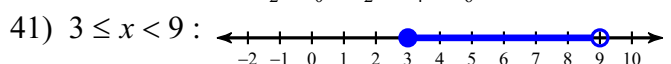
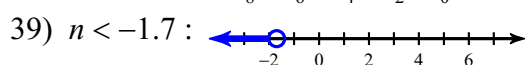
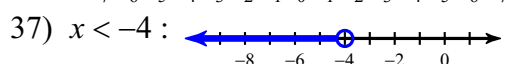
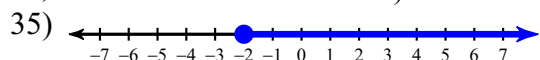
$$90) \left(\frac{x^4 \cdot x}{xy^4} \right)^{-2}$$

Answers to Semester 1 Final REVIEW

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|---------------------------|-------------------------|---------------------|---------------------------------------|
| 1) 5 | 2) 3 | 3) 8 | 4) -22 |
| 5) $-35k - 64$ | 6) $-35 - 40x$ | 7) $50 - 90a$ | 8) $8n - 1$ |
| 9) $\{-1\}$ | 10) $\{-27\}$ | 11) $\{6\}$ | 12) $\{-0.5\}$ |
| 13) { All real numbers. } | 14) $\{-5\}$ | 15) No solution. | |
| 16) $\{0\}$ | 17) $\{-5\}$ | 18) $\{-36\}$ | 19) $\left\{-\frac{22}{3}\right\}$ |
| 20) $\{5.33\}$ | 21) $\{7, -7\}$ | 22) $\{1, -1\}$ | 23) $\left\{\frac{15}{4}, -5\right\}$ |
| 24) $\{-4, -16\}$ | 25) $x = \frac{w-v}{k}$ | 26) $a = u - k + b$ | 27) $a = \frac{-g + 16 - b}{12}$ |

- | | | | |
|--------------------------|-----|-----|-----|
| 28) $x = \frac{2uy}{15}$ | 29) | 30) | 31) |
|--------------------------|-----|-----|-----|

32) 33) $k > -3$

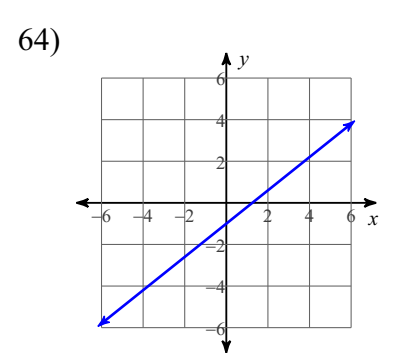
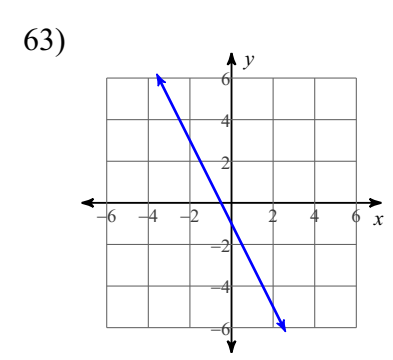
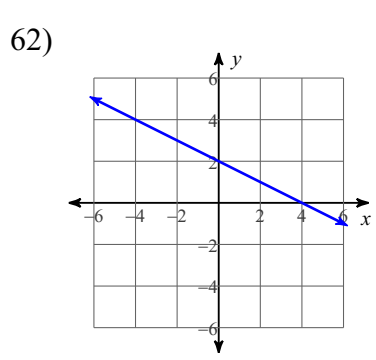
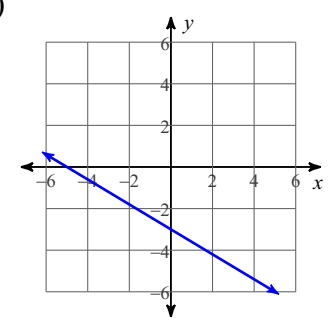


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| 43) | 44) | 45) 5 | 46) 32 |
| 47) | 48) | 49) | 50) |

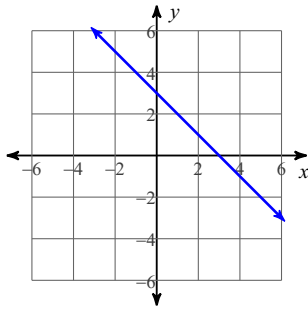
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|-------|-------------------|--------------------|--------------------|
| 51) 0 | 52) $\frac{2}{7}$ | 53) $-\frac{2}{3}$ | 54) $\frac{10}{3}$ |
|-------|-------------------|--------------------|--------------------|

- | | | | |
|--------------------|--------------------|---------------|-----------------------------|
| 55) $-\frac{5}{4}$ | 56) $-\frac{1}{2}$ | 57) $y = -2x$ | 58) $y = -\frac{3}{2}x - 4$ |
|--------------------|--------------------|---------------|-----------------------------|

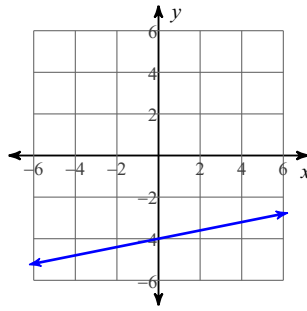
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| 59) $y = -\frac{1}{4}x + 4$ | 60) $y = 4x - 11$ | 61) | |
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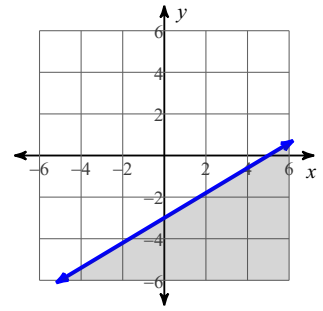
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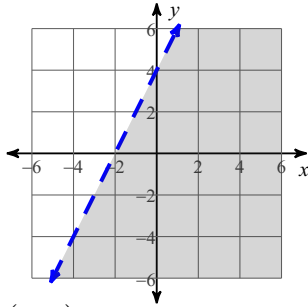
66)



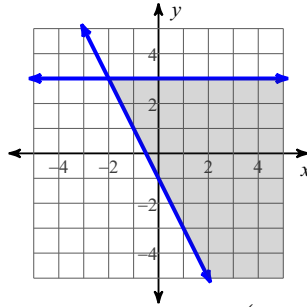
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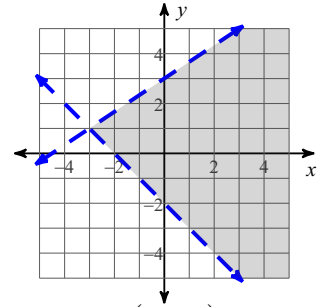
68)



69)



70)



71) $(2, 2)$

72) $(2, 3)$

73) $(-1, 0)$

74) $(3, -1)$

75) $(-3, -3)$

76) $(2, 2)$

77) adult ticket: \$6, student ticket: \$3

78) rose bush: \$8, bunch of ornamental grass: \$3

79) 3^4

80) 2^3

81) $8x^6$

82) $\frac{1}{v^7 u^3}$

83) $\frac{m^6}{n^8}$

84) $\frac{1}{3}$

85) $9a^4$

86) $8y^3$

87) $x^{13}y$

88) $2x^6y$

89) $\frac{y^8}{4x^{10}}$

90) $\frac{y^8}{x^8}$