

**REVIEW FOR FINAL – ALGEBRA I***Name:**Rewrite each expression using exponents:*

1.  $3 \cdot 3 \cdot 3 \cdot 3$

2.  $5 \cdot x \cdot x \cdot y \cdot y \cdot y$

*Evaluate each expression:*

3.  $48 - 24 \div 3 + 5$

4.  $45 + 3(12 - 7)$

5.  $2 + 3^2[(10 - 2) \div 4]$

*Evaluate each expression when  $m = 2$ ,  $n = 3$ ,  $a = 4$ :*

6.  $4m + (5 + n)m$

7.  $5ma - n^2$

*Simplify each expression:*

8.  $9n + 5n^2 - 3n + 8n^2$

9.  $3 + 4(5x + 7) + 3x$

*Simplify:*

10.  $\frac{3}{4} \cdot \frac{5}{7}$

11.  $\frac{8}{7} \cdot \frac{5}{12}$

12.  $\frac{5}{7} + \frac{2}{3}$

13.  $\frac{14m + 28}{-7}$

*Solve each equation:*

14.  $-15 = t + 2$

15.  $13 - b = 5$

16.  $h + (-16) = -3$

17.  $g - (-3) = 8$

18.  $3m = 12$

19.  $5x = 28$

20.  $12 = \frac{1}{3}y$

21.  $-5k + 3 = -7$

22.  $\frac{m}{-2} + 3 = -3$

23.  $8 = \frac{3y + 4}{2}$

24.  $5y - 3 = 8y + 3$

25.  $4(m + 3) = 32$

Solve for y:

26.  $2x + 3y = 10$

27. Draw a picture, write an equation, and solve the problem. The length of a rectangle is 7 more than three times the width. The perimeter is 30. Find the width of the rectangle.

<u>Picture</u>	<u>Equation</u>	<u>Solution</u>
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Solve each proportion:

28.  $\frac{m}{4} = \frac{3}{10}$

29.  $\frac{x+2}{3} = \frac{4}{5}$

30. Kathy can type 14 business letters in 5 hours. At the same rate, how many letters can she type in 6 hours? (set up a proportion and solve!)

31. Seventy-seven is what percent of 220?

32. Fifty-four is 25% of what number?

33. Mike bought a pair of jeans at Gap for 30% off. If the original price of the jeans was \$39.95, what is the sale price?

34. Jessica buys a shirt which costs \$15.95. How much will she have to pay with the 6% tax added?

35. Mr. Jones' history class has 5 unit exams each worth 15% of the semester grade, a semester exam worth 20% of the semester grade, and a project worth 5% of the grade. Sam's scores for the semester are: Unit exams – 82, 91, 93, 87, 90

Semester exam – 90

Project – 98

Find Sam's average for the semester.

36. In a raffle there are 525 tickets sold. You buy 15 tickets. What is the probability your ticket will be drawn (only one ticket is drawn)?

37. Write the relation at right as a set of ordered pairs:

38. State the domain, range and inverse of the relation.

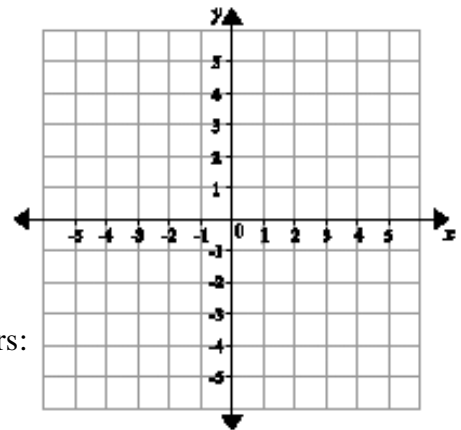
Domain:

Range:

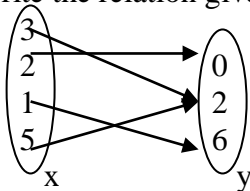
Inverse:

x	y
2	3
-5	-1
4	-2
-6	4
0	1
5	0

39. Graph the points on the coordinate grid provided to the right.



40. Write the relation given by the mapping as a set of ordered pairs:



41. Which of the following equations are linear equations? (Circle the ones which are)

a)  $5x + 2y = 9$

b)  $xy = 5$

c)  $y = 5x - 3$

d)  $x = 7$

e)  $3x^2 + 5y = 10$

f)  $y = x$

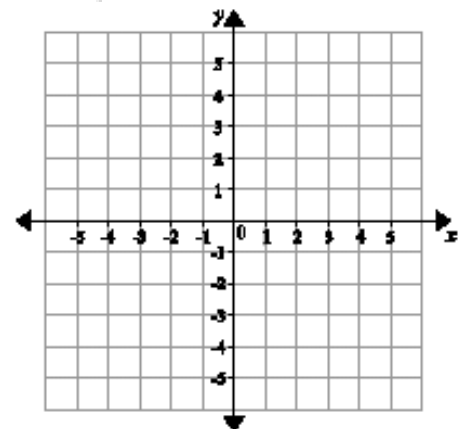
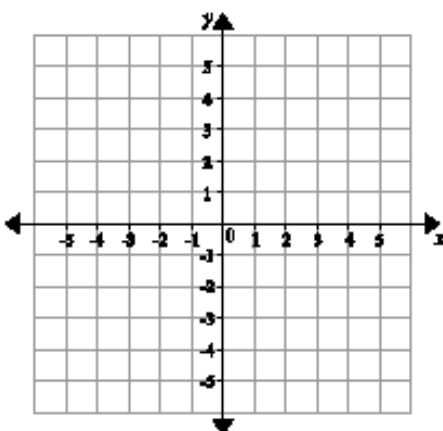
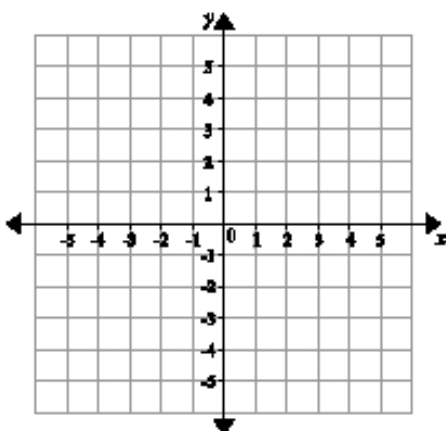
42. Given  $f(x) = 3x^2 + 2x - 5$ , find  $f(4)$ .

Graph:

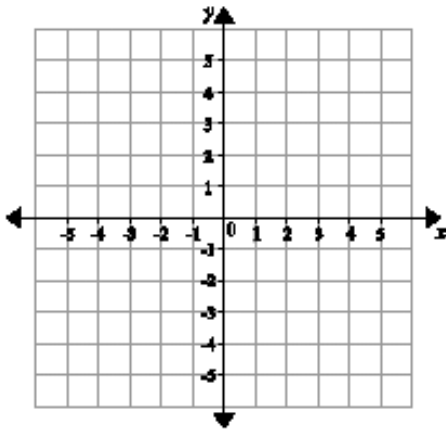
43.  $x - 4y = 2$

44.  $y = \frac{2}{3}x + 2$

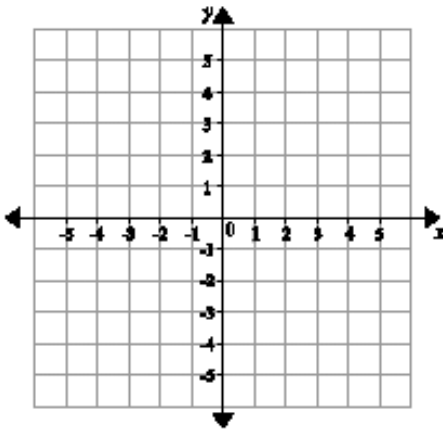
45.  $y = 2x - 3$



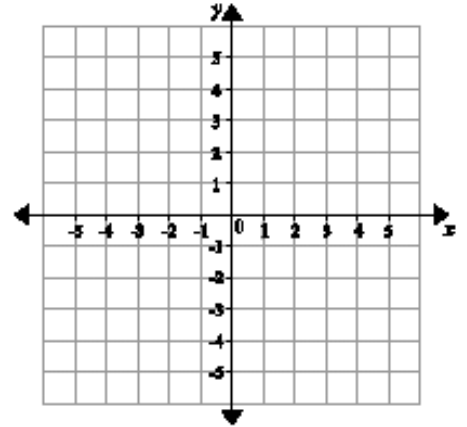
46.  $y < \frac{1}{2}x - 4$



47.  $3x + 2y \geq 12$



48. slope:  $-\frac{3}{5}$ ; y-int: 2



Determine the slope of the line containing the points given:

49. (5, -2) and (7, 3)

50. (2, 5) and (6, 5)

51. (-2, 5) and (-2, 7)

52. Write the equation for the line containing the points (3, 5) and (6, 11).

53. A Boeing 747 takes off from the runway, and 20 minutes after liftoff, the plane is 30,000 feet from the ground. At 22 minutes after liftoff, the plane is 45,000 feet from the ground. Write an equation to represent the time (x) and the feet from the ground (y) during this time.

Solve each inequality:

54.  $-10 > x + 2$

55.  $5m \leq 9 + 2m$

56.  $\frac{4r}{5} > \frac{-2}{3}$

57.  $-3y + 2 \leq 14$

58.  $-3 < j + 4 \leq 5$

59.  $|5x - 2| \geq 8$

Graph on a number line:

60.  $t > 4$

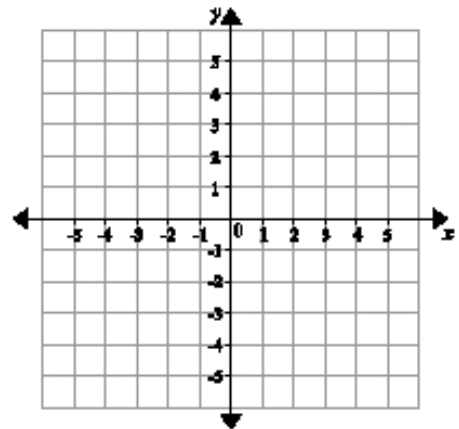
61.  $m \leq 2$

62.  $-2 < x < 5$

63. Jennifer has scored 18, 15, and 30 points in her last starts on the JV basketball team. How many points must she score in her next start so that her four-game average is greater than 20 points? Write an inequality and solve.

64. Solve by graphing:  
 $y = 2x - 5$   
 $x + y = 4$

65. Solve by substitution:  
 $2x - 3y = 1$   
 $y = x - 2$



Solve by elimination:

66.  $3x - 2y = 4$   
 $4x + 2y = 10$

67.  $2x + 3y = 5$   
 $5x + 4y = 16$

68. Write a system of equations to represent the following problem and then solve it to find the answer.

Joey sold 30 peaches from his fruit stand for a total of \$7.50. He sold small ones for 20 cents each and large ones for 35 cents each. How many of each kind did he sell?

*Simplify:*

69.  $m^2 \cdot m^4$

70.  $(x^2y^4z)^3$

71.  $\frac{m^{15}n^4}{m^3n^2}$

72.  $(5r^2t^3)(-3rt^5)(4r^3t^2)$

73.  $\frac{15x^8y^{-3}}{3x^{-2}y^5}$

74.  $(12x^2 - 5xy + 3y) + (8x^2 + 2xy + 4y)$

75.  $(3x + 8) - (5x - 3)$

76.  $8ab^3(3a^2b - 4ab^5 + 3a^2b^2)$

77.  $(9p + 2)(4p - 3)$

78.  $(3x - 5)^2$

79.  $(3g + 2n)(3g - 2n)$

*Factor the following equations and solve:*

80.  $x^2 + 6x + 8 = 0$

81.  $x^2 - 3x - 54 = 0$

*Use the quadratic formula to solve the following equations:*

82.  $y^2 - 6y + 9 = 0$

83.  $10x^2 + 3x = 5$