Name: _____

<u>Algebra 1 Final Exam Summary</u>

The date of the Algebra 1 Final Exam is: _____ at: _____.

You MAY use a calculator on the exam although you will not NEED one.

You will need to know the following:
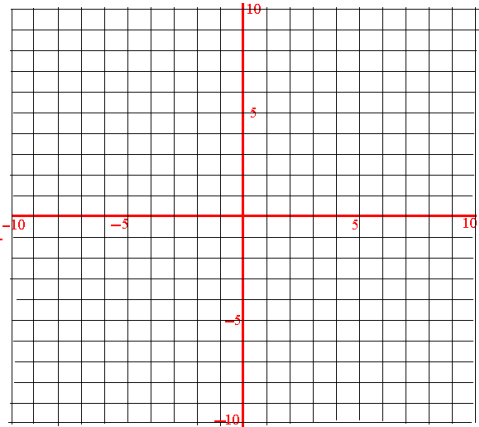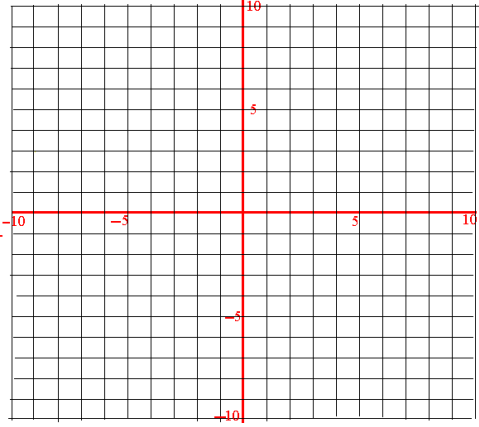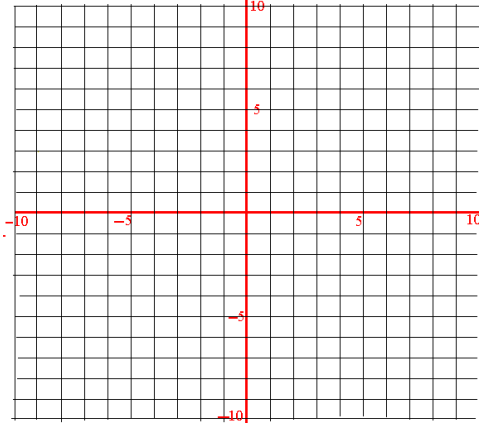

<u>Chapter 6</u>

Inequalities

Examples: Solve the following equations/inequalities.

1. $2x+4>3x-1$	2. $7-3x\leq16$	3. $x+3\leq2(x-4)$
4. $|x+3|>7$	5. $|3+x|+7<10$	6. $|3x-4|-2=21$

Examples: Write the expression in words.

7. $5 < x \le 7$	8. $2 < x < 10$	9. x < -21 or x > -5

Examples: Graph.

10. $2x+3y>6$	11.
	$x>5$ (on a number line) $4 \le x < 7$ (on a number line)
12. $x+y>3$ 	13. $2x-y\ge1$

Chapter 7

Systems

Examples: Solve the system of equations using linear combination.
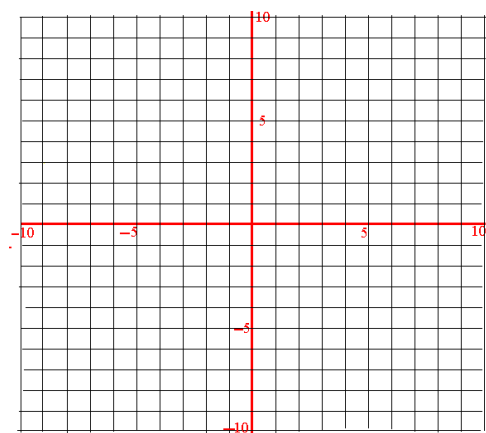
14. $3x + 4y = 6$ $x + 2y = 4$	15. $4x + 3y = 16$ $2x - 3y = 8$	16. $3x + 5y = 6$ $-4x + 2y = 5$

Examples: Solve the system of equations using substitution.

17. $3x + 4y = 6$ $x + 2y = 4$	18. $x + y = 1$ $x - y = 2$	19. $x + 2y = 1$ $5x + 3y = -23$

Solve the System by Graphing

20. y = 2x - 3 and y = 1/4x + 4	21. *y = -3 and x=2*

Chapter 8

Exponent Rules

Examples: Simplify.

22. $x^2 \cdot x^4$	23. $2x^2 \cdot 4x^5$	24. $(x^3)^4$	25. $(2x^2)^3$
26. x^{-4}	27. $\left(\dfrac{2x}{3y}\right)^{-2}$	28. $\dfrac{2x^{-4}y}{3y^{-2}}$	29. $\dfrac{5x^4y}{8x^2}$

30. x^1	*31.* 5^1	*32.* x^0	*33.* $x^2 \cdot x^{-2}$
34. $\dfrac{5x^2}{4y^5} \cdot \dfrac{2x^{-5}y^2}{10y^7}$	*35.* $\left(\dfrac{2x^{-7}}{6y^5x}\right)^0 \cdot \dfrac{2^{-5}}{x^4}$	*36.* $(-5)^4(-5)^1(-5)^{-2}$	*37.* $\dfrac{x^7y}{x^{-6}y^{12}}$

Scientific Notation

Examples: Write in scientific notation.

38. 2637	*39.* .000597	*40.* 35209	*41.* .00000209

Examples: Write in decimal form.

42. 2.36×10^5	*43.* 1.3273×10^{-4}	*44.* 9.342×10^{-2}	*45.* 1.46×10^{10}

Chapter 9

Radicals

Examples: Simplify.

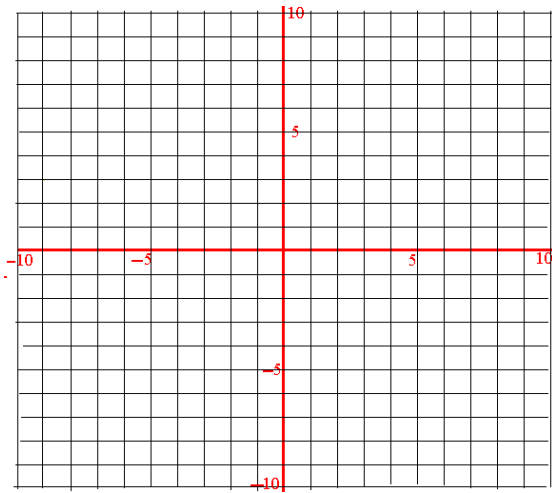|			
46. $\sqrt{40}$	47. $5\sqrt{20}$	48. $\sqrt{\dfrac{25}{36}}$	49. $\sqrt{\dfrac{100}{64}}$
50. $\sqrt{\dfrac{73}{25}}$	51. $\sqrt{75}$	52. $\sqrt{\dfrac{25}{7}}$	53. $\sqrt{\dfrac{40}{9}}$

Quadratic Formula

Examples: Solve the equation using the quadratic formula.

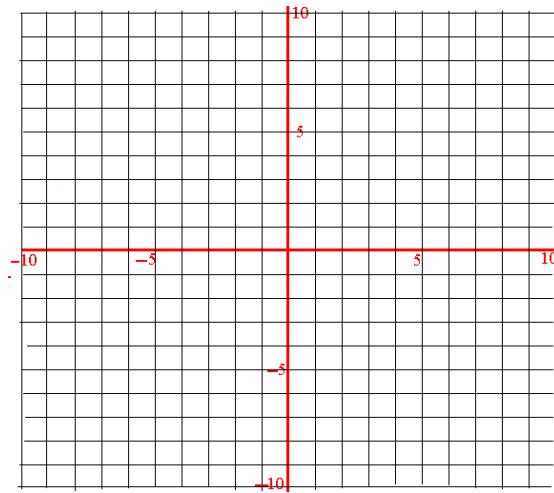|		
54. $y = 2x^2 + 4x - 6$	55. $y = x^2 + 11x + 10$	56. $y = 15x^2 - 9w - 6$

Graphing Quadratics

Examples: Graph the quadratic. Identify the vertex, x intercepts, y intercept, and axis of symmetry.

57. $y = x^2 + 5x + 4$	58. $y = x^2 - 9$

Chapter 10

Factoring

Examples: Factor the polynomial.

59. $x^2 + 5x - 6$	60. $2x^2 + 7x + 6$	61. $16x^2 - 25$	62. $3y^3 + 12y^2 + 9y$

63. $3x^3 + 21x^2 + 30x$	64. $10x^2 + 15x + 5$	65. $25x^2 - 49$	66. $16y^2 - 81$

Polynomials

Examples: Perform the indicated operations.

67. $(3x^2 + 2x - 4) - (2x^4 + 5x^2 - 3x + 7)$	68. $(2x + 4)(x + 3)$	69. $x^2 + 4(x + 2) - 2x^2 + 11$
70. $2x^2(3x^2 + 4x - 7)$	71. $(x + 4)(x - 3)$	72. $(3x^2 + 4x - 1)(x - 2)$
73. $(2x + 3)^2$	74. $(x - 2)^2$	75. $2x(x - 1) - 5x + 6x^2$

Examples: Solve the equation by factoring.

76. $x^2 + 9x + 20 = 0$	77. $x^2 + 8x = 65$	78. $x^2 - 5x = 84$
79. $x^2 + 7x + 10 = 0$	80. $y^2 - 3y - 18 = 0$	81. $y^2 - 10y = -16$

Chapter 11

Solving Proportions

Examples: Solve the proportion. Check for extraneous solutions (check your answer!).

82. $\dfrac{x-3}{5} = \dfrac{x}{10}$	83. $\dfrac{3}{x} = \dfrac{5}{8}$	84. $\dfrac{x-2}{4} = \dfrac{x+10}{10}$	85. $\dfrac{-2}{a-7} = \dfrac{a}{5}$