

ALGEBRA II HONORS SUMMER WORK

The attached assignments are due on the first day of school, **Tuesday September 6, 2011**.

The algebra skills contained in this packet are considered prerequisite skills for Algebra II Honors. It is very important for you to demonstrate your understanding and mastery of these skills. It is important that you **SHOW YOUR WORK**. Any problems without accompanying work will be marked as incorrect.

Ms. Magnus and Mr. Huestis will be teaching Algebra II Honors. If you have any questions on the worksheet/content you can contact us at:

- Hmagnus@agawamteachers.org
- Chuestis@agawamteachers.org

DIRECTIONS:

1. For your answers, each section/part must be clearly identified. If you use more than one page per section, staple each section's answers together.
2. Write your name in the top right corner of each section/part.
3. All graphs must be completed on graph paper. If you do not have graph paper, you can print graph paper online at <http://www.printfreegraphpaper.com/>
4. Return the entire folder, work included, on the first day of school.
5. Once we have gone over the summer packet you will have a test on the material. It is your responsibility to work diligently over the summer and email us with any questions.
6. **Bonus points will be awarded on your first test if you hand in the summer work before the close of school on August 5th.**

Helpful Formulas:

- Slope-intercept form of a line:
 - Where m is the slope and b is the y-intercept
- Slope formula: _____
- Quadratic Formula to use when _____
 - _____

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Part I. REAL NUMBERS-Evaluate the following expressions:

1. $\frac{1}{2} + \frac{2}{3}$

2. $\frac{2}{3} - \frac{3}{7}$

3. $7\frac{3}{4} - 4\frac{4}{5}$

4. $\frac{1}{2} \div \frac{2}{3}$

5. $3\frac{1}{2} \times 6\frac{1}{4}$

6. $(4(-3))^2 + 4(-3)^2$

7. $-2(1+5) + (-3)(2)$

8. $\frac{-15}{5} - \frac{36}{-12} + \frac{-12}{-4}$

9. $-9|-16+2|$

10. Write as a percent

a. 0.3

b. 0.007

c. 1.506

d. $\frac{1}{4}$

e. $\frac{13}{20}$

f. $\frac{1}{200}$

11. Write as a decimal

a. 40%

b. .7%

c. 103.5%

Part II. EQUATIONS AND INEQUALITIES-Solve the following equations and inequalities:

12. $x + (-11) = 12$

13. $-2 = 0.4h$

14. $-12 = \frac{1}{4}p$

15. $\frac{5x}{3} = 60$

16. $8x + 15 = 47$

17. $5(x - 3) = 95$

18. $2p + 38 = 5p + 5$

19. $6(x - 2) = 3x + 2(x + 1)$

20. Solve and graph on the number

line: $7t > 4t + 3(1 - t)$

21. Solve and graph on the number

line: $\frac{-3y}{5} > -\frac{9}{10}$

22. $\frac{15}{2a} = \frac{3}{10}$

23. $\frac{g+3}{4} = \frac{g-2}{2}$

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24. $2.4 : c = 4 : 3$

25. $4 : n = n : 9$

26. $\frac{3x}{5} + \frac{12}{5} = \frac{4x}{5} - \frac{2}{3} + \frac{4x}{3}$

27. Solve for b: $b + a = 100$

28. Solve for m: $F = \frac{Mm}{d}$

29. Solve for b: $A = \frac{1}{2}h(a + b)$

30. Solve for x: $ax - bx = 2a$

31. Solve for x: $x^2 + 10x + 25 = 0$

32. Solve for x: $2x^2 - 13x + 6 = 0$

33. Solve for q: $q^2 = 121$

Part III. POLYNOMIALS-Evaluate or simplify the following polynomials:

34. Evaluate $28 - 3(x - 4)$ when

$$x = 9$$

35. Simplify $(3a + b) + (2a + 3b)$

36. Simplify $3x + y - 4x - 7y$

37. Simplify $3(x - 6) - 5x$

38. Simplify $3(2(x - 3) + 2) + 5(x - 3)$

39. Evaluate for $x = -5$:

$$3|x^2 - 4| + 7(x - 2)$$

40. Evaluate for $g = -32, t = 4.5$:

$$d = 0.5gt^2$$

41. Evaluate for $b_1 = 13, b_2 = 9, h = 8$:

$$A = \frac{1}{2}(b_1 + b_2)h$$

42. Multiply $(x - 3)(x - 4)$

43. Multiply $(a + 6)(a - 6)$

44. Multiply $(2x + 5)(3x - 7)$

45. Multiply $(m + 12)^2$

46. Simplify $\frac{12n^2 + 15n}{3n}$

47. Simplify $\frac{x - 7}{2x - 14}$

48. Simplify $\frac{4a^2b}{12ab^3}$

49. Simplify $\frac{5n + 15}{n + 3}$

50. Simplify $\frac{c^5}{c^2}$

51. Simplify $(3k^{10})^3$

52. Simplify $3m^4 \times 5m^2$

53. Simplify $3m^6 \times 2m^{-8} \times \frac{1}{3}m^{-3}$

54. Simplify $\frac{3x}{2} + \frac{5x}{2}$

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55. Simplify $\frac{3x}{5} - \frac{x}{2}$

56. Simplify $\frac{7x}{8} \div \frac{32x}{35}$

57. Simplify $\frac{16}{3x} \div \frac{5}{3x}$

58. Factor $8x^3 + 40x$

59. Factor $4p^2 - 3p$

60. Factor $x^2 + 7x + 10$

61. Factor $x^2 + 5x - 6$

62. Factor $t^2 - t - 30$

63. Factor $a^2 - 81$

64. Factor $y^2 - 10y + 25$

65. Factor $x^2 + 7x - 8$

Part IV. SYSTEMS-Solve the following systems. Give your answer as an ordered pair, or in the graph, if provided.

66. Solve the system. Give your answer as an ordered pair.
$$\begin{cases} x = 7y \\ x - y = 30 \end{cases}$$

67. Solve the system. Give your answer as an ordered pair.
$$\begin{cases} 2x + 8y = 2 \\ -2x - 4y = 6 \end{cases}$$

68. Solve the system by graphing.
$$\begin{cases} 2x - y < 2 \\ y \geq -x + 3 \end{cases}$$

Part V. RADICALS

69. Use the Pythagorean theorem to find the hypotenuse in a right triangle with legs of 6 and 8.

70. Simplify $\sqrt{50}$

71. Simplify $3\sqrt{72}$

72. Simplify $\sqrt{a^2b^4c^5}$

73. Simplify $6\sqrt{5} + 2\sqrt{5}$

74. Simplify $\sqrt{32x^6}$

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75. Simplify $\sqrt{8} - \sqrt{32}$

76. Simplify $(\sqrt{2} + \sqrt{3})(\sqrt{2} - 5\sqrt{3})$

77. Simplify $(\sqrt{6} + \sqrt{5})^2$

78. Simplify $(3\sqrt{2})(2\sqrt{8})$

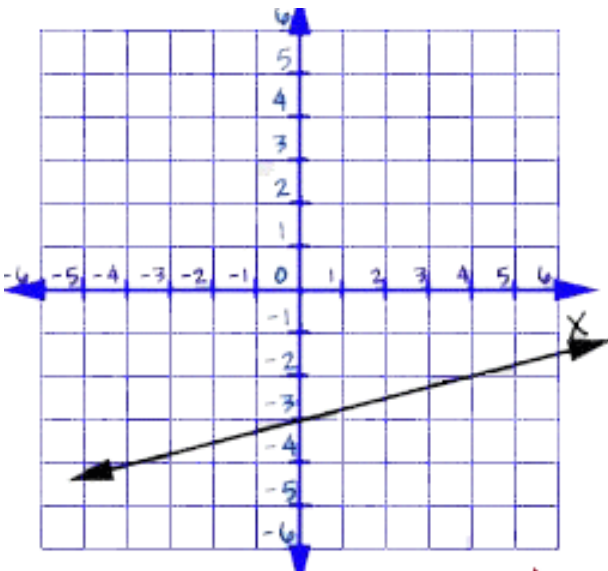
Part VI. LINEAR EQUATIONS

79. Calculate the slope of the line containing the points (2,4) and (6, -2)

80. Identify the slope and y-intercept of $y = -7x + 5$

81. Identify the slope and y-intercept of

82. Find the equation (in slope-intercept form) of the line in the graph below.



83. Graph $y = -\frac{1}{3}x + 1$

84. Graph $3x - 2y = 6$

85. Graph