Advanced Algebra One

to

Honors Geometry

An assessment will be given over the material in this packet in your Honors Geometry class at the beginning of the school year.

Dear Future Honors Geometry Student,

Congratulations! You have completed Advanced Algebra 1 as well as earned 1.0 credit toward your 4.0 credits of high school math.

We have learned a lot of new concepts this year and it is very important that you retain these skills. Next year you will be taking Honors Geometry. Believe it or not, Honors Geometry uses a lot of algebra skills. Also, Algebra 2 w/ Trig and Honors Algebra 2 w/ Trig will be a lot easier if you keep your Algebra 1 skills up-to-date.

This packet contains necessary Algebra 1 concepts that should be practiced. An assessment will be given over the material in this packet in your Honors Geometry class at the beginning of the school year. This packet is meant to assist you in preparing for the assessment. You are free to pick and choose which problems you feel that you need to work on, but we suggest that you do all of them and check your answers.

Good luck and have a great summer!

Helpful Websites

Multiplying Integers	http://www.learningwave.com/chapters/integers/mlt.html
Operations with Fractions	http://cstl.syr.edu/FIPSE/fracunit/Opfrac/Opfrac.htm
Distributive Property	http://www.algebrahelp.com/lessons/simplifying/distribution/
Writing Equations of Lines	http://www.purplemath.com/modules/strtlneq.htm http://www.youtube.com/watch?v=CSacN28lkNI
Factoring	http://www.youtube.com/watch?v=lMU5wMDcJNg http://www.youtube.com/watch?v=NzStCbj_kJo
Solving Quadratic Equations	http://www.purplemath.com/modules/solvquad.htm http://www.purplemath.com/modules/quadform.htm http://video.google.com/videoplay?docid=6750617731762388525 http://www.purplemath.com/modules/solvquad2.htm
Simplifying Radicals	http://www.purplemath.com/modules/radicals2.htm

Note: You can "google" or search these topics on "youtube" to get additional resources to help you.

For problems 1 – 11, solve each equation. Show work.

1. $-4x - 22 = 10$

2. $6x - 30 = -4x + 18$

3. $9(x + 2) = 56$

4. $8a - 3(2a + 5) = 13$

5. $\frac{3}{2}(b + 1) = 3$

6. $\frac{6}{5}(8k + 2) = -36$

7. $\frac{3}{4}x - 9 = 3$

8. $2x^2 + 9 = 59$

9. $4(2x - 5) = 4(x + 7)$

10. $2y + 11.4 = 2.6 - 0.2y$

11. $\frac{1}{12}(48 + 24b) = 2(17 - 4b)$

For problems 12 – 14, solve the proportion. Show work. Give exact answers.

12. $\frac{9}{y} = \frac{y}{3}$

13. $\frac{x - 4}{8} = \frac{3x - 4}{3}$

14. $\frac{a + 5}{12} = \frac{12}{18}$

For problems 15 – 28, factor completely.

15. $9x^2 - 16$

16. $3x^2 - 75$

17. $16x^2 + 72x + 81$

18. $16x^2 - 40x + 25$

19. $12x^2 - 19x - 21$

20. $3x^2 + 18x + 27$

21. $2x^2 + 2x - 24$

22. $9x^2 - 25y^2$

23. $144x^2 - 81y^2$

24. $12x^2 + 13x - 14$

25. $9x^2 - 6x + 1$

26. $25x^2 + 70x + 49$

27. $15x^2 + 29x + 12$

28. $16x^2 - 100y^2$

For problems 29 – 32, simplify the radical expression. Leave answer in simplified radical form.

29. $\sqrt{32}$

30. $\sqrt{300}$

31. $\sqrt{48}$

32. $\sqrt{\frac{8}{25}}$

For problems 33 – 42, find the slope. Leave answers as simplified improper fractions.

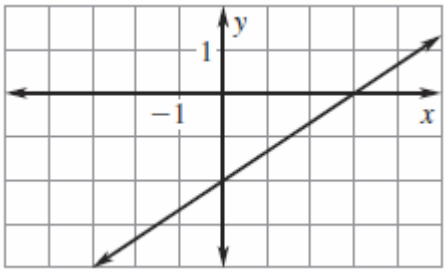
33. Find the slope of the line through the points (3, 4) and (6, 10).

34. Find the slope of the line through the points (3, -4) and (6, -4)

35.

x	3	4	5	6	7	8	9
y	-4	-1	2	5	8	11	14

36.



37. Find the slope of the line with function values f(2) = -3 and f(-6) = 9.

38. Find the slope of the line through the points (6, 4) and (6, -10).

39. Slope of the line through the points (-2, -5) and (7, 9).

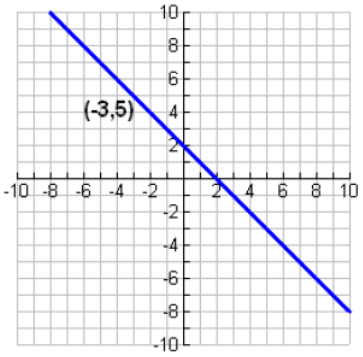
40.

x	-2	1	4	7	10	13	16
y	16	14	12	10	8	6	4

41.

x	-2	0	2	4	6	8	10
y	-6	-3	0	3	6	9	12

42.



For problems 43 – 50, write the equation of the line in slope intercept form.

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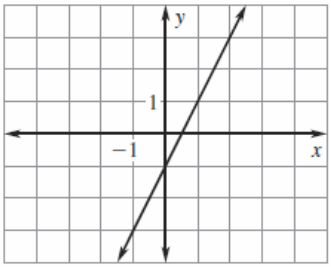

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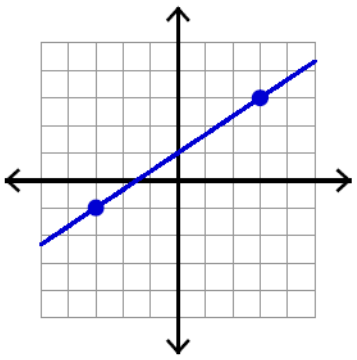

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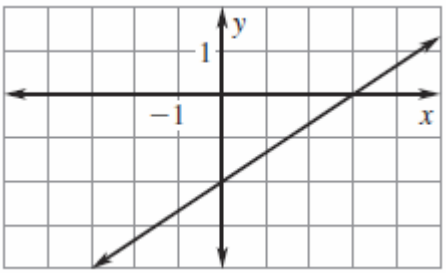

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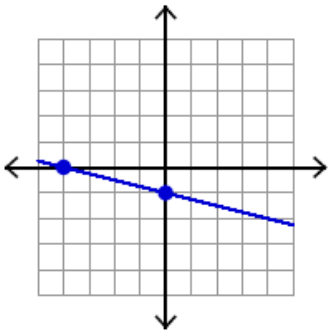

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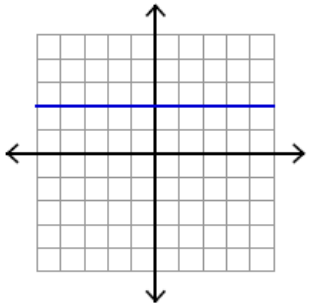

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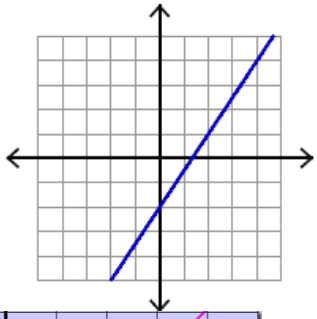

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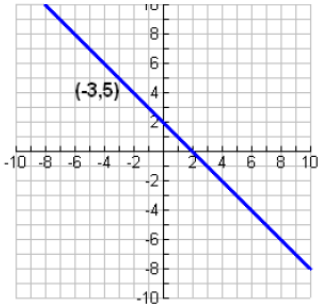
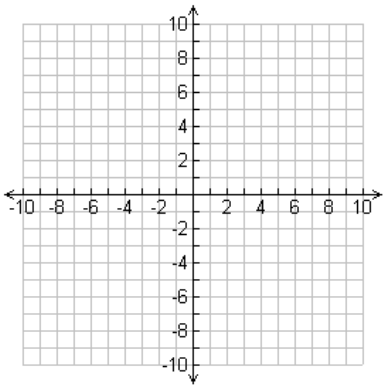


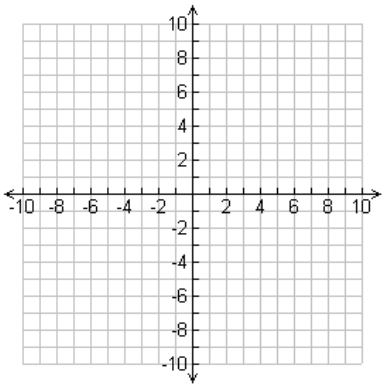
50.

For 51 – 55, graph the following equations.

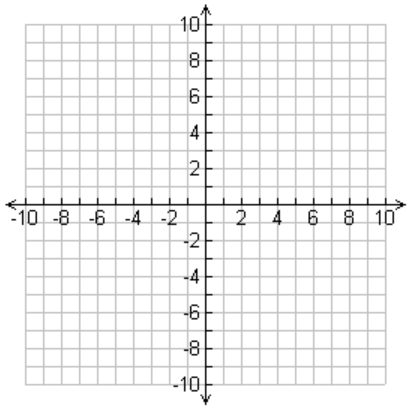
51. y = -x + 6



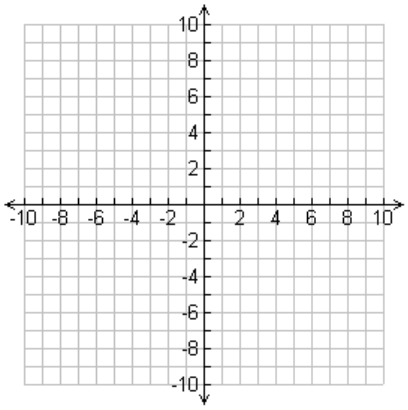
52. x = 5



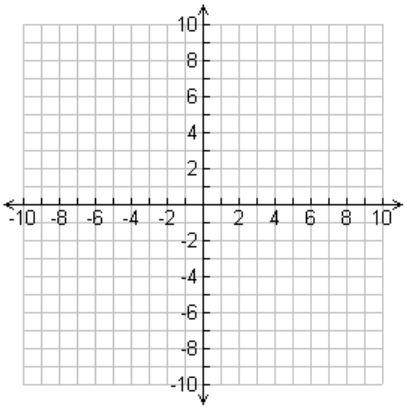
53. y = 3x – 4



54. $y = \frac{3}{4}x$



55. y = -4



For problems 56 – 59, write an equation, in slope-intercept form of the line that passes through the given point and has given slope, *m*.

56. (2, 3); m = 2

57. (6, -4); m = -1

58. (6, 2); $m = -\frac{1}{2}$

59. (-3, -1); $m = -\frac{4}{5}$

For problems 60 and 61, write an equation in slope-intercept form that contains the given points.

60. (2, -2); (5, 7)

61. (6, 4); (2, 1)

For problems 62 – 65 write an equation, in slope-intercept form, that passes through the given point and is *parallel* to the given line.

62. (1, -2); -5x + y = 9

63. (-3, -4); 2y = 4 + 3x

64. (5, -1); $y = -\frac{3}{5}x - 3$

65. (9, 4); y – x = 3

For problems 66 - 71, solve the system.

66. 2x + y = 40
y = 6x

67. 2x – 9y = 1
7x – 12y = 23

68. -8x – 10y = 24
6x + 5y = 2

69. -16 + 20x – 8y = 0
36 = -18y – 22x

70. -16y = 22 + 6x
-11y – 4x = 15

71. x = -7y
2x – 8y = 22

For problems 72 – 85, solve the quadratic equation. Leave answers in simplified radical form. *Recall: Methods to solve quadratic equations include factoring, inverse operations, and quadratic formula.*

72. $x^2 - 81 = 0$

73. $4x^2 - 32x = 0$

74. $4x^2 = 45$

75. $x^2 - 3 = 4$

76. $7(x - 3)^2 = 35$

77. $\frac{3}{2}(n + 1)^2 = 33$

78. $4x^2 + 16x = 20$

79. $-x^2 + 9x - 16 = 0$

80. $k^2 - 8k - 7 = 0$

81. $v^2 - 7v + 1 = 0$

82. $3x^2 - 5x - 2 = 0$

83. $2x^2 - 7x = -3$

84. $2x^2 - 7 = x$

85. $3n^2 - 5n = -1$

Answer Key:

1) x = -8

2) x = 4.8

3) $x = 4\frac{2}{9}$

4) a = 14

5) b = 1

6) k = -4

7) x = 16

8) $x = \pm 5$

9) x = 12

10) y = -4

11) b =3

12) $y = \pm 3\sqrt{3}$

13) $x = \frac{20}{21}$

14) a = 3

15) (3x + 4)(3x – 4)

16) 3(x + 5)((x – 5)

17) $(4x + 9)^2$

18) $(4x – 5)^2$

19) (4x + 3)(3x – 7)

20) $3(x + 3)^2$

21) 2(x + 4)(x – 3)

22) (3x + 5y)(3x – 5y)

23) 9(4x + 3y)(4x – 3y)

24) (3x – 2)(4x + 7)

25) $(3x – 1)^2$

26) $(5x + 7)^2$

27) (5x + 3)(3x + 4)

28) 4(2x + 5y)(2x – 5y)

29) $4\sqrt{2}$

30) $10\sqrt{3}$

31) $4\sqrt{3}$

32) $\frac{2\sqrt{2}}{5}$

33) 2

34) 0

35)3

36) $\frac{2}{3}$

37) $-\frac{3}{2}$

38) undefined

39) $\frac{14}{9}$

40) $-\frac{2}{3}$

41) $\frac{3}{2}$

42) -1

43) y = 2x – 1

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

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

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

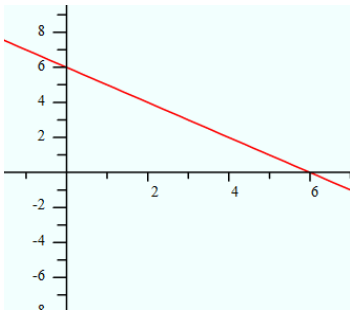
47) y = 2

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

49) y = -x + 2

50) Company L: $y = \frac{1}{4}x + 10$ Company K: $y = \frac{1}{2}x + 5$

51)



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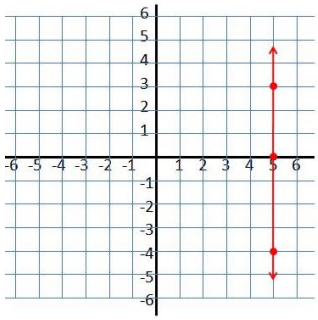

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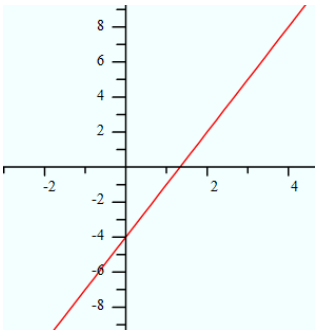

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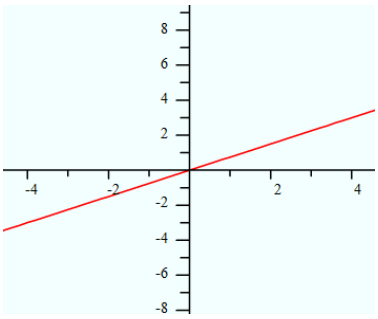

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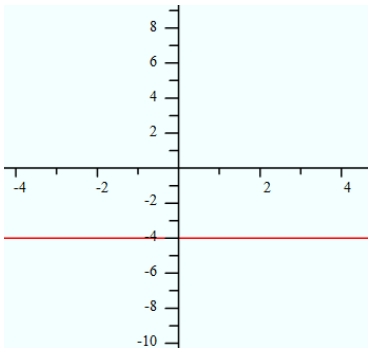

56) $y = 2x - 1$ 57) $y = -x + 2$ 58) $y = -\frac{1}{2}x + 5$ 59) $y = -\frac{4}{5}x - 3\frac{2}{5}$

60) $y = 3x - 8$ 61) $y = \frac{3}{4}x - \frac{1}{2}$

62) $y = 5x - 7$ 63) $y = \frac{3}{2}x + \frac{1}{2}$ 64) $y = -\frac{3}{5}x + 2$ 65) $y = x - 5$

66) (5, 30) 67) (5, 1) 68) (7, -8) 69) (0, -2) 70) (-1 ,-1)

71) (7, -1)

72) $x = \pm 9$ 73) $x = 0, x = 8$ 74) $\pm \frac{3\sqrt{5}}{2}$ 75) $\pm\sqrt{7}$ 76) $x = 3 \pm \sqrt{5}$

77) $n = -1 \pm \sqrt{22}$ 78) $x = -5, x = 1$ 79) $x = \frac{9 \pm \sqrt{17}}{2}$ 80) $x = 4 \pm \sqrt{23}$ 81) $x = \frac{7 \pm 3\sqrt{5}}{2}$

82) $x = 2, x = -\frac{1}{3}$ 83) $x = 3, x = \frac{1}{2}$ 84) $x = \frac{1 \pm \sqrt{57}}{4}$ 85) $x = \frac{5 \pm \sqrt{13}}{6}$