

Honors Geometry Algebra Review

This assignment should be completed without the use of a calculator – Except where specified. Leave all answers in simplified radical form or improper fractions (no decimals). Answers are also found below so you can check your work.

Solve.

$$1. \frac{2}{3} + x = -\frac{5}{2} - \frac{5}{6}$$

$$2. \frac{1}{2}x + \frac{3}{2}x = x + \frac{9}{2} - \frac{1}{2}x$$

$$3. \frac{3}{2}x + \frac{1}{5}x = \frac{11}{6}x - \frac{2}{15}$$

Solve each equation for the indicated variable.

$$4. A = \frac{bh}{2}, \text{ for } b$$

$$5. A = \pi r^2, \text{ for } r$$

$$6. P = 2w + 2l, \text{ for } w.$$

$$7. V = \frac{4\pi r^3}{3}, \text{ for } r$$

$$8. A = \frac{(b_1 + b_2)h}{2}, \text{ for } b_1$$

$$9. d = \sqrt{x^2 + y^2}, \text{ for } y$$

Solve.

$$10. \frac{27}{4} = \frac{m}{4}$$

$$11. \frac{x}{4} = \frac{9}{x}$$

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

$$13. \frac{4x-2}{3} = \frac{2x}{7}$$

$$14. \frac{x-2}{3} = \frac{2x+8}{6x}$$

Solve.

$$15. 7 + 8y > 2y - 12$$

$$16. 5 - 4y < 37$$

$$17. 6m - 14 > 18 - 10m$$

Simplify the following expressions.

$$18. \frac{7^5}{7^3}$$

$$19. \left(\frac{4}{3}\right)^{-2}$$

$$20. (x^4y^3)(x^5y)$$

$$21. (-2x^5y^6)^3$$

$$22. \frac{3a^2x^3}{18a^4x^2}$$

$$23. \left(\frac{12a^4x^3}{18a^4x^7}\right)$$

Multiply.

24. $(x+5)(x-3)$

25. $(2x-5)(3x-7)$

26. $(x-4)(x+4)$

27. $(2x-6)(2x+6)$

28. $(x+9)^2$

29. $(4x-11)^2$

Factor (#30-38) and Solve (#39-47).

30. $x^2 - 49$

31. $x^2 - 64$

32. $x^2 - 1$

33. $4a^2 - 36$

34. $144y^2 - 100$

35. $16n^2 - 81$

36. $x^2 + 8x + 16$

37. $a^2 + 10a + 25$

38. $n^2 - 2n + 1$

39. $x^2 - 14x + 49 = 0$

40. $16x^2 + 24x + 9 = 0$

41. $25x^2 - 60x + 36 = 0$

42. $x^2 + 2x - 35 = 0$

43. $x^2 + 20x + 64 = 0$

44. $x^2 + 8x - 48 = 0$

45. $2x^2 - 12x + 10 = 0$

46. $3x^2 + 26x + 16 = 0$

47. $6x^2 - 12x - 18 = 0$

Simplify each radical expression. * Leave your answers in simplest radical form!!!* (This means no decimals and no radicals in any denominators)

48. $\sqrt{27}$

49. $\sqrt{48}$

50. $\sqrt{80}$

51. $\sqrt{18}$

52. $\sqrt{250}$

53. $\sqrt{\frac{9}{16}}$

54. $\sqrt{\frac{9}{32}}$

55. $\frac{\sqrt{3}}{\sqrt{5}}$

56. $\frac{6}{\sqrt{3}}$

57. $\sqrt{\frac{1}{8}}$

58. $10\sqrt{5} + 3\sqrt{5}$

59. $\sqrt{80} - \sqrt{45}$

60. $(3\sqrt{3})(7\sqrt{6})$

61. $(\sqrt{3})(\sqrt{6})$

Solve by completing the square.

62. $x^2 + 8x - 17 = 0$

63. $x^2 - 4x - 16 = 0$

64. $x^2 + 10x + 18 = 0$

Solve by the quadratic formula.

65. $3x^2 + 8x + 2 = 0$

66. $5x^2 + 3x - 16 = 0$

67. $3x^2 + 8x + 10 = 0$

For each of the following equations or inequalities:

a) identify the slope

b) identify the x- and y-intercept

c) graph

68. $y = x - 2$

69. $2x + 4 = y$

70. $5y + 2x = 10$

71. $2y + 4x = 14$

72. $3y - 4x = 9$

73. $x = 4$

74. $y = -5$

75. $y \geq 3x + 1$

76. $4y < 6x - 8$

77. $2y - 3x \leq 12$

78. $3x - 6y > 36$

Find the slope of the line that passes through the following points.

79. (6, 8) & (-2, -4)

80. (-3, 0) & (-3, 5)

81. (5, 1) & (-1, 1)

82. (3, 4) & (5, -8)

Write the slope-intercept form of the equation of each line.

83. $3x - 2y = -16$

84. $13x - 11y = -12$

85. $6x + 5y = -15$

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

86. through (1, 2); $m = 7$

87. through (3, 1); $m = -1$

88. through (-2, 5); $m = -4$

89. through (2, 1); undefined slope

90. through (6, -2); $m = 0$

Write the equation of a line in point-slope form with the given conditions.

91. Parallel to $y = 2x - 10$ and passes through $(4, 2)$.

92. Perpendicular to $y = \frac{2}{3}x + 8$ and passes through $(-3, 7)$

93. Parallel to $y = \frac{9}{7}x - 11$ and passes through $(0, -4)$

94. Perpendicular to $2y - 10 = -x$ and passes through the point $(-5, -1)$

Solve each system by graphing. You must use the graphing calculator in order to complete these problems. Reminder, write answers as improper fractions (where necessary).

95. $y = -3x + 5$
 $y = 2x + 10$

96. $x + y = 6$
 $x - y = 4$

97. $x + y = 3$
 $2x - y = 2$

Solve each system by either substitution or elimination method.

98. $y = 7x + 5$
 $y = 4x - 10$

99. $5x + 2y = 22$
 $x + 2y = 14$

100. $2x + 5y = 2$
 $3x - 2y = 3$

101. $x - y = 9$
 $3x + y = 11$

102. $y = 7 - 2x$
 $5y = -3x + 7$

103. $6x + 3y = 0$
 $8x + 5y = 8$

104. $x = 8 + 3y$
 $2x - 5y = 8$

105. $3x + 2y = 71$
 $y = 4 + 2x$

Honors Geometry Algebra Review Answers

1) $x = -4$

2) $x = 3$

3) $x = 1$

4) $b = \frac{2A}{h}$

5) $r = \pm \sqrt{\frac{A}{\pi}}$

6) $w = \frac{p-2l}{2}$

7) $r = \sqrt[3]{\frac{3V}{4\pi}}$

8) $b_1 = \frac{2A}{h} - b_2$

9) $y = \pm \sqrt{d^2 - x^2}$

10) $m = 27$

11) $x = \pm 6$

12) $a = \frac{29}{2}$

13) $x = \frac{7}{11}$

14) $x = 4, x = -1$

15) $y > \frac{-19}{6}$

16) $y > -8$

17) $m > 2$

18) 49

19) $\frac{9}{16}$

20) x^9y^4

21) $-8x^{15}y^{18}$

22) $\frac{x}{6a^2}$

23) $\frac{2}{3x^4}$

24) $x^2 + 2x - 15$

25) $6x^2 - 29x + 35$

26) $x^2 - 16$

27) $4x^2 - 36$

28) $x^2 + 18x + 81$

29) $16x^2 - 88x + 121$

30) $(x-7)(x+7)$

31) $(x-8)(x+8)$

32) $(x-1)(x+1)$

33) $4(a-3)(a+3)$

34) $4(6y-5)(6y+5)$

35) $(4n-9)(4n+9)$

36) $(x+4)^2$

37) $(a+5)^2$

38) $(n-1)^2$

39) $x = 7$

40) $x = \frac{-3}{4}$

41) $x = \frac{6}{5}$

42) $x = -7, x = 5$

43) $x = -16, x = -4$

44) $x = -12, x = 4$

45) $x = 5, x = 1$

46) $x = \frac{-2}{3}, x = -8$

47) $x = 3, x = -1$

48) $3\sqrt{3}$

49) $4\sqrt{3}$

50) $4\sqrt{5}$

51) $3\sqrt{2}$

52) $5\sqrt{10}$

53) $\frac{3}{4}$

54) $\frac{3\sqrt{2}}{8}$

55) $\frac{\sqrt{15}}{5}$

56) $2\sqrt{3}$

Honors Geometry Algebra Review Answers

$$57) \frac{\sqrt{2}}{4}$$

$$58) 13\sqrt{5}$$

$$59) \sqrt{5}$$

$$60) 63\sqrt{2}$$

$$61) 3\sqrt{2}$$

$$62) x = -4 \pm \sqrt{33}$$

$$63) x = 2 \pm 2\sqrt{5}$$

$$64) x = -5 \pm \sqrt{7}$$

$$65) x = \frac{-4 \pm \sqrt{10}}{3}$$

$$66) x = \frac{-3 \pm \sqrt{329}}{10}$$

$$67) x = \phi \text{ (no solutions)}$$

For the problems #68-78 the graphs are on the following pages.

$$68) m = 1; (2,0) (0,-2)$$

$$69) m = 2; (-2,0) (0,4)$$

$$70) m = \frac{-2}{5}; (5,0) (0,2)$$

$$71) m = -2; \left(\frac{7}{2}, 0\right) (0, 7)$$

$$72) m = \frac{4}{3}; \left(\frac{-9}{4}, 0\right) (0,3)$$

$$73) m = \text{no slope}; (4,0) \text{ none}$$

$$74) m = 0; \text{none } (0,-5)$$

$$75) m = 3; \left(\frac{-1}{3}, 0\right) (0,1)$$

$$76) m = \frac{3}{2}; \left(\frac{4}{3}, 0\right) (0,-2)$$

$$77) m = \frac{3}{2}; (-4,0) (0,6)$$

$$78) m = \frac{1}{2}; (12,0) (0,-6)$$

$$79) m = \frac{3}{2}$$

$$80) \text{no slope}$$

$$81) m = 0$$

$$82) m = -6$$

$$83) y = \frac{3}{2}x + 8$$

$$84) y = \frac{13}{11}x + \frac{12}{11}$$

$$85) y = \frac{-6}{5}x - 3$$

$$86) y = 7x - 5$$

$$87) y = -x + 4$$

$$88) y = -4x - 3$$

$$89) x = 2$$

$$90) y = -2$$

$$91) y - 2 = 2(x - 4)$$

$$92) y - 7 = \frac{-3}{2}(x + 3)$$

$$93) y + 4 = \frac{9}{7}(x - 0)$$

$$94) y + 1 = 2(x + 5)$$

$$95) (-1,8)$$

$$96) (5,1)$$

$$97) \left(\frac{5}{3}, \frac{4}{3}\right)$$

$$98) (-5,-30)$$

$$99) (2,6)$$

$$100) (1,0)$$

$$101) (5,-4)$$

$$102) (4,-1)$$

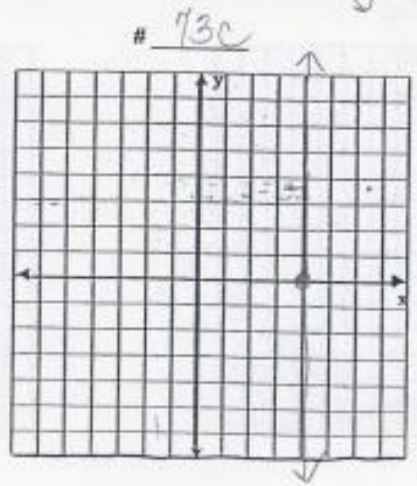
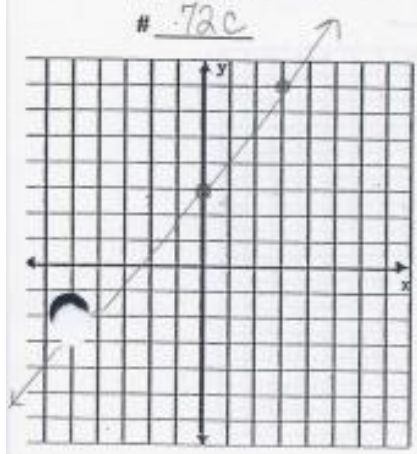
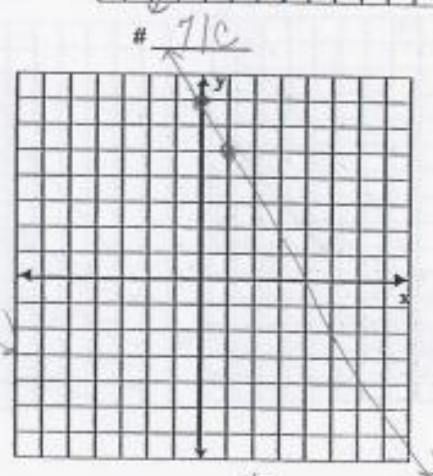
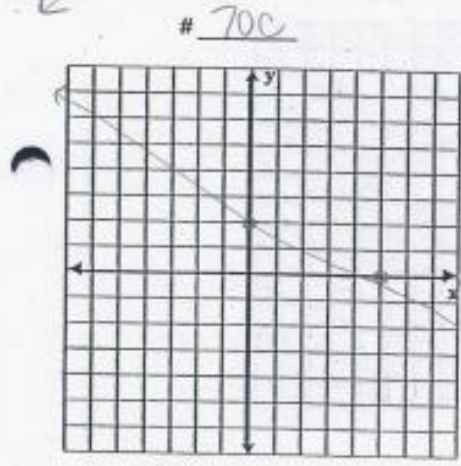
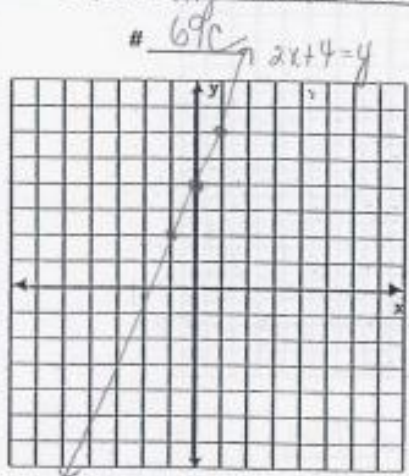
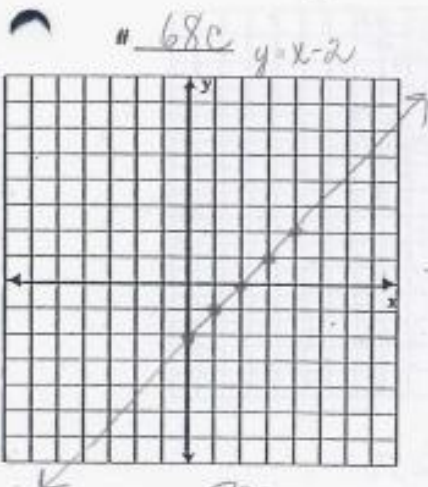
$$103) (-4,8)$$

$$104) (-16,-8)$$

$$105) (9,22)$$

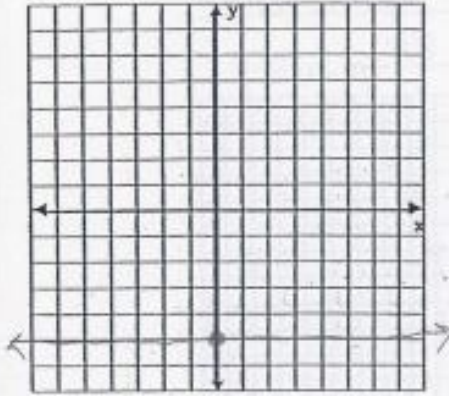
Honors Geometry Algebra Review Answers

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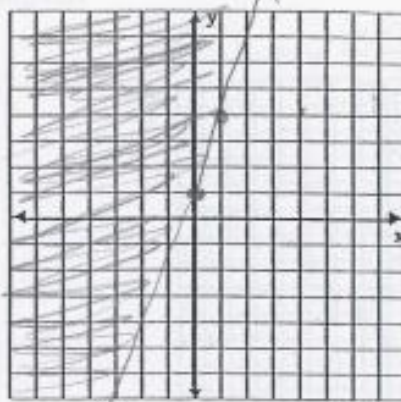


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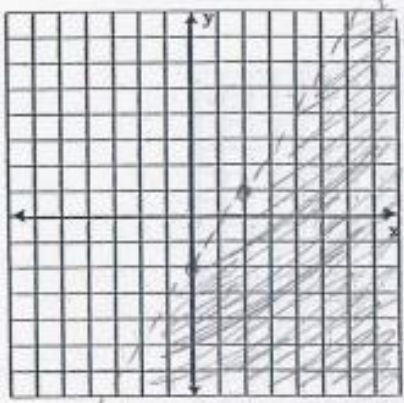
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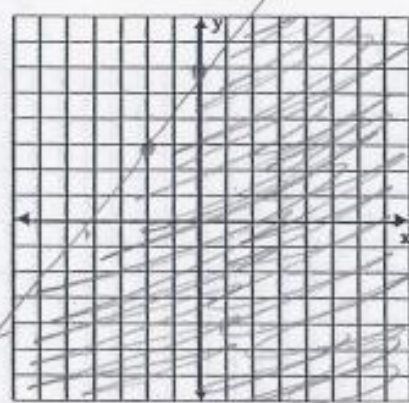
75c



76c



77c



78c

