Honors Geometry Algebra Review

<u>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).</u> *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. $A=\frac{bh}{2}$, for b

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

6. P = 2w + 2l, for w.

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

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

9. $d=\sqrt{x^2+y^2}$, 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. $\left(x^4y^3\right)\left(x^5y\right)$

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

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. $\left(3\sqrt{3}\right)\left(7\sqrt{6}\right)$

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

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 = ± 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) $x = \phi$ (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 = no slope; (4,0) none

74) m = 0; 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) 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)

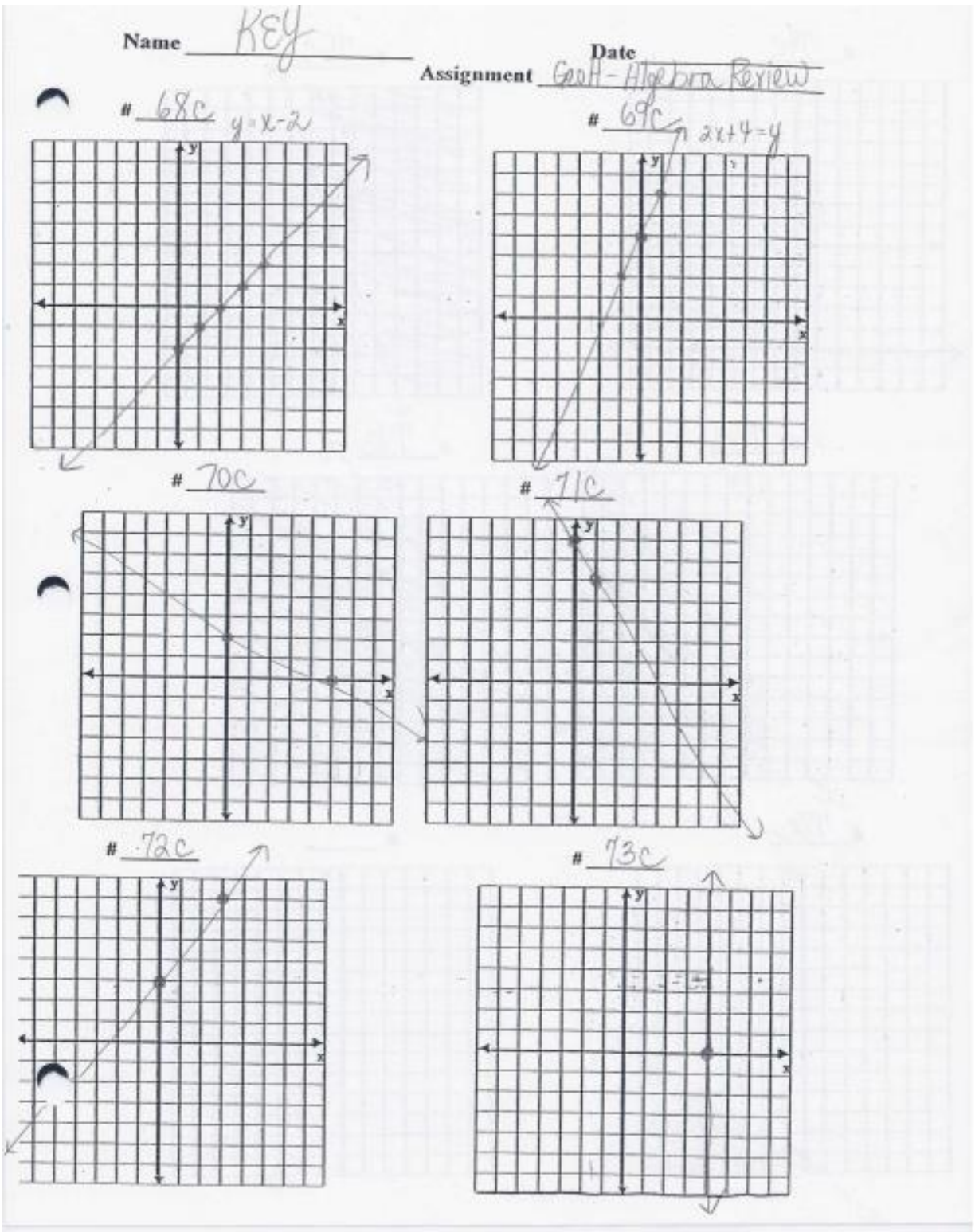
102) (4,-1)

103) (-4,8)

104) (-16,-8)

105) (9,22)

Honors Geometry Algebra Review Answers



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