Honors Geometry **Name:** _____

Summer Work **Date:**_____ **Block:**_____

Students enrolled in Honors Geometry for the upcoming school year should complete the following questions on a separate sheet of paper. All work must be neat and legible with final answers boxed. Students who do not complete this packet on a separate sheet of paper will not receive full credit. You will find the appropriate topic name at the beginning of each section. If you struggle with a specific topic, use those key words to search YouTube or Google. Students should have a full and thorough understanding of Algebra I.

Note: Students will submit summer work to their teacher within the first week of class. Summer work will count as multiple daily grades. The first assessment in Honors Geometry covers this material.

Solving Linear Equations

1. $2p + 5 = 13$

2. $2 + 2b = 2 + 5b$

3. $4x + 5 + 5x + 40 = 180$

4. $2(4x + 4) = x + 1$

5. $2(x + 5) = 3(x - 2)$

6. $180 - x = 3(90 - x)$

7. $3(180 - y) = 2(90 - y)$

8. $6x - 3(6 - 5x) + 3x = 10 - 4(2 - x)$

9. $\frac{1}{2}(6 + 4x) - \frac{1}{4}(8x - 12) = \frac{1}{2}(2x - 4)$

10. $5x - [7 - (2x - 1)] = 3(x - 5) + 4(x + 3)$

Solving Proportions

$\frac{a}{b} = \frac{c}{d}$ *if and only if* $a \cdot d = b \cdot c$

11. $\frac{7}{2} = \frac{y}{3}$

12. $\frac{7}{3} = \frac{21}{x}$

13. $\frac{25}{15} = \frac{10}{x}$

14. $\frac{10}{6x+7} = \frac{6}{2x+9}$

15. $\frac{4}{x-3} = \frac{6}{x+3}$

16. $\frac{3x-5}{2} = \frac{x-15}{4}$

17. $\frac{2-4x}{-6} = \frac{6x-8}{10}$

18. $\frac{x+2}{5} = \frac{4}{x+1}$

19. $\frac{2}{x-3} = \frac{x-2}{6}$

Linear Equations in Two Variables

Find the slope of the line that passes through each pair of points.

20. $(2,3)$ *and* $(-4,8)$

21. $(\frac{1}{4}, \frac{1}{2})$ *and* $(\frac{3}{4}, \frac{3}{8})$

State the slope and y-intercept of the following lines.

22. $y = 4x - 6$

23. $y = \frac{1}{2}x + 8$

Write the equation of the line through the given point with the given slope.

24. $m = \frac{2}{3}$ *through* $(3, -4)$

25. $m = -4$ *through* $(1, -3)$

Write the equation of the line through the given points.

26. $(3, -6)$ *and* $(6, 2)$

27. $(-7, 2)$ *and* $(-3, 5)$

Solving Systems of Equations

Solve the following systems of equations using substitution. Write answers as ordered pairs.

28. $\begin{cases} y = 2x + 5 \\ 3x - y = 4 \end{cases}$

29. $\begin{cases} 8x + 3y = 26 \\ 2x = y - 4 \end{cases}$

30. $\begin{cases} x - 7y = 13 \\ 3x - 5y = 23 \end{cases}$

31. $\begin{cases} 3x + 4y = 19 \\ 2x - 5y = -10 \end{cases}$

Solve the following systems of equations using elimination. Write answers as ordered pairs.

32. $\begin{cases} 3x + 4y = 9 \\ -3x - 2y = -3 \end{cases}$

33. $\begin{cases} 4x - 6y = -26 \\ -2x + 3y = 13 \end{cases}$

34. $\begin{cases} 2x - 8y = 24 \\ 3x + 5y = 2 \end{cases}$

35. $\begin{cases} 5x - 9y = 47 \\ 6x + 2y = 18 \end{cases}$

Simplifying Rational Expressions

36. $\frac{14}{70}$

37. $\frac{75}{15}$

38. $\frac{18a}{36}$

40. $\frac{3x}{x}$

41. $\frac{x}{3x}$

42. $\frac{5bc}{10b^2}$

43. $\frac{-8y^3}{2y}$

44. $\frac{-18r^3t}{12rt}$

45. $\frac{6a+12}{6}$

46. $\frac{33ab-22b}{11b}$

47. $\frac{x+2}{3x+6}$

48. $\frac{2c-2d}{2c+2d}$

49. $\frac{t^2-1}{t-1}$

50. $\frac{5a+5b}{a^2-b^2}$

51. $\frac{b^2-25}{b^2-12b+35}$

52. $\frac{a^2+8a+16}{a^2-16}$

Simplifying Radical Expressions

53. $\sqrt{36}$

54. $\sqrt{24}$

55. $\sqrt{98}$

56. $\sqrt{300}$

57. $\sqrt{\frac{1}{4}}$

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

59. $\sqrt{\frac{80}{25}}$

60. $\frac{2\sqrt{3}}{\sqrt{12}}$

61. $\sqrt{13^2}$

62. $(\sqrt{17})^2$

63. $(2\sqrt{3})^2$

64. $(3\sqrt{8})^2$

65. $5\sqrt{18}$

66. $4\sqrt{27}$

67. $6\sqrt{24}$

68. $9\sqrt{40}$

Factoring by GCF/Factoring Trinomials

69. $x^2 + 3x$

70. $2x^2 - 10x$

71. $x^2 + 3x + 2$

72. $x^2 - 8x + 15$

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

74. $x^2 - 6x - 27$

75. $x^2 + 5x - 36$

76. $x^2 - 25$

77. $9x^2 - 49$

78. $3x^2 - 5x - 2$

79. $2x^2 + x - 10$

80. $x^3 - 4x^2 - 21x$

Solving Equations by Factoring

81. $x^2 + 5x - 6 = 0$

82. $4x^2 + 15 = 17x$

83. $x^2 - 7x - 18 = 0$

84. $x^2 = 20x - 36$

85. $3x^2 - 13x - 10 = 0$

86. $x^2 + 8x = 20$

87. $8x^2 + 10x - 25 = 0$

88. $6x^2 - 10 = -11x$