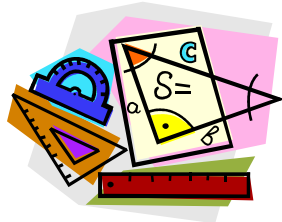


Honors Geometry

Summer 2019 Review Assignment



You are currently scheduled to take Honors Geometry at Manasquan High School during the upcoming school year.

The MHS Mathematics department has compiled a collection of problems that will be covered in a preliminary learning module for each Honors Geometry student at the beginning of the 2019-2020 school year. This module will be opened on the first day of school and will include various topics and tasks that are essential to your success in this class. The module must be completed in the first cycle of classes and a test will be given on this material at the end of the cycle. Each of the topics is a review of previously taught material. Mastery of these topics is essential to your success in this class.

To get a “head start” on these topics, the department strongly recommends that each student review/complete the problems contained within this assignment to prepare for the beginning of Honors Geometry and ensure a strong start to the school year.

Remember, the objective of this assignment is ensure that you have mastered these skills prior to taking Honors Geometry. The following two websites may be helpful if you need a refresher:

www.kahnacademy.org

www.purplemath.com

[If you have any questions regarding this assignment, please email Craig Murin, the Mathematics Supervisor for the high school at cmurin@manasquanboe.org.](mailto:cmurin@manasquanboe.org)

Part 1 – Linear Equations and Inequalities

In 1 – 10, solve each equation. Express your answer as a fraction where necessary.

1. $2p + 5 = 13$

2. $12 + 2b = 2 + 5b$

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

In 11 – 16, solve each inequality.

11. $4c + 23 \leq -13$

12. $\frac{8}{3}x + 1 > -5$

13. $\frac{a}{11} \geq 8$

14. $7q + 3 \geq -4q + 25$

15. $-3b < 48$

16. $-3w + 1 \leq 8$

In 17 – 20, solve each proportion. Express your answer as a fraction where necessary.

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

18. $\frac{25}{15} = \frac{10}{3x}$

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

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

Part 2 – Systems of Equations

In 21 – 24, solve each system by the substitution method. Write your answer as an ordered pair, using fractions if necessary.

21. $y = 2x + 5$
 $3x - y = 4$

22. $8x + 3y = 26$
 $2x = y - 4$

23. $3x + y = 19$
 $2x - 5y = -10$

24. $2x - 4y = 40$
 $8x - 3y = 82$

In 25 – 28, solve each system by the elimination method. Write your answer as an ordered pair, using fractions if necessary.

25. $3x + 4y = 9$
 $-3x - 2y = -3$

26. $4x - 6y = -26$
 $-2x + 3y = 13$

27. $3x + y = -3$
 $x + 4y = 10$

28. $5x - 9y = 47$
 $6x + 2y = 18$

Part 3 – Radical Expressions

Simplify each radical expression. Do NOT approximate with a calculator.

29. $\sqrt{36}$

30. $\sqrt{24}$

31. $\sqrt{98}$

32. $\sqrt{300}$

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

34. $(2\sqrt{3})^2$

35. $4\sqrt{27}$

36. $(5\sqrt{6})(3\sqrt{3})$

37. $\frac{15}{\sqrt{3}}$

38. $\frac{40}{\sqrt{2}}$

Part 4 – Linear Equations

In 39 & 40, calculate the slope of the line through each pair of points. Remember to express slope as a fraction in lowest terms.

39. $(3, 2)$ and $(-1, -6)$

40. $\left(\frac{1}{4}, \frac{1}{2}\right)$ and $\left(\frac{3}{4}, \frac{3}{8}\right)$

In 41 – 43, graph each line (you may attach graph paper if that is easier).

41. $y = \frac{2}{3}x - 5$

42. $x + 3y = 6$

43. $y = 2$

In 44 – 47, write the equation of each line described in slope-intercept form.

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

45. $m = -4$, passes through $(1, -3)$

46. passes through $(3, -6)$ and $(6, 2)$

47. passes through $(-7, 2)$ and $(-3, 5)$

Part 5 – Factoring

Factor each expression completely. Remember to look for a GCF first.

48. $x^2 + 3x$

49. $2x^2 - 10x$

50. $x^2 + 3x + 2$

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

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

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

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

55. $x^2 - 25$

56. $9x^2 - 49$

57. $3x^2 - 5x - 2$

58. $2x^2 + x - 10$

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

Part 6 – Polynomials

Find each product.

60. $(3x - 4)(2x + 5)$

61. $(x - 6)^2$

62. $(5x - 3)^2$

Part 7 – Quadratic Equations

In 63 – 68, solve each quadratic by factoring. Remember, you must first set the equation equal to zero.

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

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

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

66. $4x^2 + 15x = 17x$

67. $3x^2 - 13x - 10 = 0$

68. $6x^2 + 11x - 10 = 0$

In 69 – 74, solve each quadratic by using the Quadratic Formula. Remember, you must first set the equation equal to zero.

69. $x^2 + 6x + 9 = 0$

70. $x^2 + 8x = -15$

71. $x^2 - 4 = -6x$

72. $2x^2 = -6x - 3$

73. $7x + 3 = 2x^2$

74. $5x^2 - x - 4 = 0$

Part 8 – Perimeter and Area

75. Find the area and perimeter of a rectangle with length $4\sqrt{3}$ inches and width $3\sqrt{3}$ inches. Be sure to label properly.

76. Find the area of a triangle with base length 10 cm and a height of 8 cm.

77. Find the circumference and area of a circle with a radius of 8 inches. Use the π button in your calculator (if you can find it, if not use 3.14) and round your answers to the nearest tenth. Be sure to label properly.

