

Honors Geometry Summer Packet



Dear Student,

Welcome to Sayreville War Memorial High School and your math course for the year! Honors Geometry is a challenging course which combines theories in geometry and algebraic practice. It is an intense course that creates a bridge to other higher level courses offered here at the high school. There is much to learn, and each class session during school will require students to work diligently, both during and outside of class. This summer Math packet addresses the material that you should be comfortable with that was taught during your Algebra 1 Course. This Math packet serves 2 purposes:

- 1) It will allow you to remain mathematically fresh during the summer and
- 2) It will enable you to “hit the ground running” when this course begins.

This packet should be completed and brought with you on the first day of school. Use the answer key provided to check your work. If you come across questions that you are unsure of, make note and bring that up to your teacher during the review. You will be assessed on this content within the first week or so of school. It would be a mistake to complete this packet immediately upon the completion of this past school year as well as waiting until just before the next school year begins. Take some time off and look towards beginning the packet come mid-summer. It is important that the techniques practiced in this packet are fresh in your mind come the first day of school.

Good luck!

Name: _____

Name: _____

Honors Geometry Summer Review

I. Solve each equation and show your work. You may use and attach scratch paper. Fractional answers should be left as fractions. Circle your solution.

1. $2x + 5 = 13$

2. $12 + 2y = 2 + 5y$

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

4. $2(4x + 3) = x + 1$

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

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

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

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

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

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

II. Evaluate the following systems of equations using any method that you choose. Find the value for both variable and represent your solution as an ordered pair. Show your work.

11. Evaluate for x and y .

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

12. Evaluate for x and y .

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

13. Evaluate for x and y .

$$\begin{cases} -2x + 3y = -15 \\ 3x + 2y = -23 \end{cases}$$

14. Evaluate for x and y .

$$\begin{cases} x - 4y = 12 \\ 3x + 5y = 2 \end{cases}$$

15. Evaluate for x and y .

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

16. Evaluate for x and y .

$$\begin{cases} 5x + 3y = 30 \\ 3x + 3y = 18 \end{cases}$$

III. Identify the specific location/ quadrant for each ordered pair listed.

17. (-4, 8)

18. (5, 1)

19. (5, -9)

20. (0, -2)

21. (-2, -6)

22. (-1/2, -0.4)

23. (11, 0)

24. (6, 1/3)

25. (0, 0)

26. (9, -1)

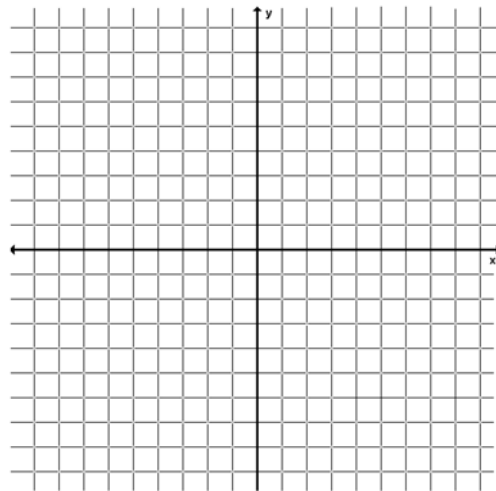
27. (3, 9)

28. (-6, 6)

IV. Graph the following equations on the coordinate plane. You may use any method for graphing but you must show how you determined the points to be used. For each graph, identify the slope and x and y intercepts.

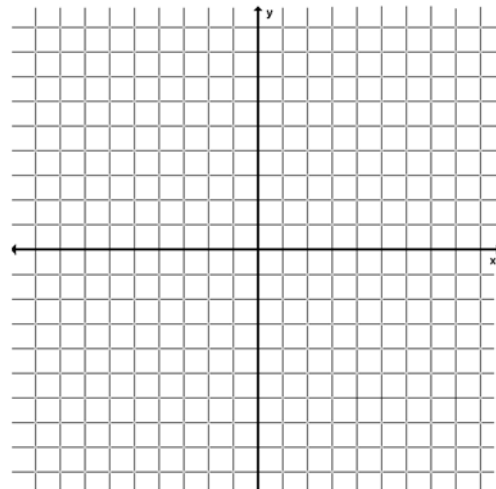
29. $y = 3x - 4$

slope: _____ x intercept: _____ y intercept: _____



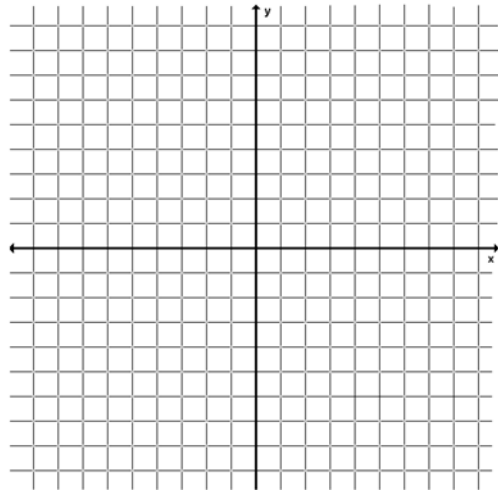
30. $3y - 6x = 15$

slope: _____ x intercept: _____ y intercept: _____



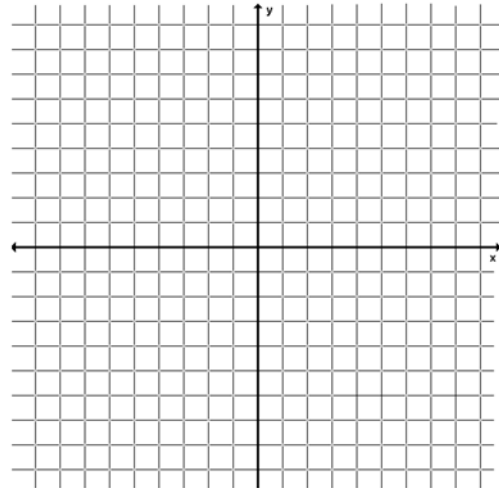
31. $4x - 2y = 18 - 2x$

slope: _____ x intercept: _____ y intercept: _____



32. $2x - 6y = 12$

slope: _____ x intercept: _____ y intercept: _____



V. Complete the following linear equation problems providing the correct equation/ values requested.

33. Find the x and y intercepts of the line with equation $2x - 3y = 12$. _____, _____

34. Find the slope, x-intercept, and y-intercept of the line with equation $2x + 4y = 6$

Slope = _____, x-intercept = _____, y-intercept = _____

Write the equation for each line described below.

35. A vertical line that passes through the point $(5, -3)$.

36. A horizontal line that passes through the point $(-2, 8)$.

37. A line with slope -4 and y-intercept -6 .

38. A line with slope 6 and **x-intercept** 3 .

39. A line with slope $\frac{2}{3}$ that passes through the point $(-3, 6)$.

40. A line that passes through the points $(3, -1)$ and $(5, 7)$.

VI. Simplify the following rational expressions. Be sure to account for any restrictions.

41. $\frac{9x - 6y}{3}$

42. $\frac{7x^2 + 91x}{7}$

43. $\frac{16y + 20}{8x - 4}$

$$44. \quad \frac{33ab - 22b}{11b}$$

$$45. \quad \frac{5a - 5b}{a^2 - b^2}$$

$$46. \quad \frac{x^2 - 1}{x + 1}$$

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

$$48. \quad \frac{x^2 - 8x - 20}{x^2 - 100}$$

VII. Solve the following quadratic equations by factoring or using the quadratic formula.

$$49. \quad x^2 - 6x - 7 = 0$$

$$50. \quad x^2 = 20x - 36$$

$$51. \quad 2x^2 - x = 3$$

$$52. \quad x^2 - 2x - 10 = 5$$

$$53. \quad x^2 - 24 = -5x$$

$$54. \quad 10x - 25 = -8x^2$$

52. Simplify the following expressions. If needed rationalize the denominator

55. $2\sqrt{75}$

56. $(4\sqrt{5})^2$

57. $(6\sqrt{3})(5\sqrt{15})$

58. $9\sqrt{40}$

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

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

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

62. $\frac{(5\sqrt{8})(6\sqrt{6})}{12\sqrt{3}}$

Congratulations you have completed the Summer Review Packet for Honors Geometry at Sayreville War Memorial High School. Good luck this year.