



Geometry Summer Packet

2024

Mrs. Holmes

2025



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Make sure to include the 'f' in my email



Google Classroom

Join Code: **nofder2**

Congratulations! You made it to Geometry Honors. Many of the concepts you learned in Algebra 1 will be used in this High School credit class and you will be expected to remember them. Please take some time this summer and work through this review packet. Refreshing your memory of the concepts learned in Algebra 1 will help you hit the ground running in Geometry in the fall. This packet is designed to take about two hours total to complete, so spread out the work. If you do a little each day, it will be done in no time.

Complete all problems in this packet by Friday, August 16th. This packet will be your first grade of the quarter. You can expect a quiz on these concepts during the first full week of school. We will review the packet before the quiz. Be sure to show **ALL** of your work for every problem on notebook paper.

—————> **No work. No Credit.** <—————

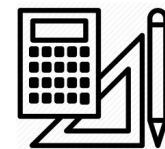
Enjoy your much deserved summer!

Review Topics

- Linear Equations
- Proportions
- Systems of Equations
- Fractions
- Slope Intercept
- Radical Expressions
- Factoring Quadratics
- Quadratics Equations
- Writing Equations of a Line
- Distance Formula
- Midpoint Formula
- Pythagorean Theorem

Class Supplies

- Binder
- Pencils
- Loose leaf paper
- 1 subject notebook
- Dry Erase markers
- Geometry Compass
- Scientific or graphing calculator; optional



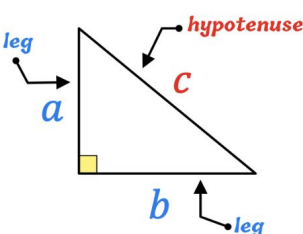
Summer Work 2024-2025

Students enrolled in Honors Geometry should complete the following questions on a separate sheet of paper. All work must be neat, legible, and in pencil, with your final answers boxed or circled. Students who do not complete this package on a separate sheet of paper will not receive 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. Incoming Honors Geometry students should have a full and thorough understanding of Algebra I.

Please look over the examples - this is how you are expected to show your work to receive full credit. Showing your work or explaining the process builds critical thinking and communication skills. It's true that not every math problem requires lots of shown work, but for this packet, I want you to show your work on notebook paper so I know you are proficient in your Algebra skills.

Solving Equations	Proportions
<p>Show all of your work and round your answers to the nearest tenth.</p> $2(180 - x) + 45 = 3x$ $360 - 2x + 45 = 3x$ $405 = 5x$ $81 = x$	<p>Solve the following proportions using the format below.</p> $\frac{3}{5} = \frac{x - 2}{x + 4}$ $3(x + 4) = 5(x - 2)$ $3x + 12 = 5x - 10$ $22 = 2x$ $11 = x$

Distance Formula	Midpoint	Slope
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $= \sqrt{(3 - (-3))^2 + (5 - 2)^2}$ $= \sqrt{(6)^2 + (3)^2}$ $= \sqrt{36 + 9}$ $= \sqrt{45}$ $= \sqrt{9 \cdot 5}$ $d = 3\sqrt{5} \quad \checkmark$	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ $= \left(\frac{-3 + 5}{2}, \frac{3 + 3}{2} \right)$ $= \left(\frac{2}{2}, \frac{6}{2} \right)$ $M = (1, 3) \quad \checkmark$	$m = \frac{y_2 - y_1}{x_2 - x_1}$ <p style="text-align: right; font-size: small;">Calcworkshop.com</p> <p>$y = mx + b$ Slope- Intercept</p> <p>$Ax + By = C$ Standard Form</p> <p>$y - y_1 = m(x - x_1)$ Point-Slope</p>

Pythagorean Theorem	Quadratics	
 <p style="text-align: center;">$a^2 + b^2 = c^2$</p>	<p style="text-align: center;">THE QUADRATIC FORMULA <small>© CHILIMATH.COM</small></p> <p>If $ax^2 + bx + c = 0$ but $a \neq 0$</p> <p>then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> <p>DISCRIMINANT</p> <ul style="list-style-type: none"> $\Rightarrow b^2 - 4ac > 0$ <u>two</u> real solutions $\Rightarrow b^2 - 4ac = 0$ <u>one</u> real solutions $\Rightarrow b^2 - 4ac < 0$ <u>zero</u> real solutions 	

Solving Linear Equations		
1. $2p+5=13$	2. $4x + 5 + 5x + 40 = 180$	3. $3(180 - y) = 2(90 - y)$
4. $180 - x = 3(90 - x)$	5. $6x - 3(6 - 5x) + 3x = 10 - 4(2 - x)$	

Linear Equations in Two Variables	
<p>Find the slope of the line that passes through each pair of points.</p> <p>6. $(2,3)$ and $(-4,8)$ 7. $\left(\frac{1}{4}, \frac{1}{2}\right)$ and $\left(\frac{3}{4}, \frac{3}{8}\right)$</p>	<p>State the slope and y-intercept of the following lines.</p> <p>8. $y = 4x - 6$ 9. $y = \frac{1}{2}x + 8$</p>
<p>Write the equation of the line through the given point with the given slope.</p> <p>10. $m = \frac{2}{3}$ through $(3, -4)$ 11. $m = -4$ through $(1, -3)$</p>	<p>Write the equation of the line through the given points.</p> <p>12. $(3, -6)$ and $(6, 2)$ 13. $(-7, 2)$ and $(-3, 5)$</p>

Solving Proportions		
14. $\frac{7}{3} = \frac{21}{x}$	15. $\frac{25}{15} = \frac{10}{y}$	16. $\frac{10}{6z + 7} = \frac{6}{2z + 9}$
17. $\frac{2 - 4r}{-6} = \frac{6r - 8}{10}$	18. $\frac{x + 2}{5} = \frac{4}{x + 1}$	19. $\frac{2}{x - 3} = \frac{x - 2}{6}$

Solving Systems of Equations	
<p>Use the <i>substitution</i> method. Solutions must be written as an ordered pair (x,y), no solution \emptyset, or infinite solutions ∞.</p> <p>20. $y = x + 8$ $2y + x = 1$</p>	<p>Use the <i>elimination</i> method. Solutions must be written as an ordered pair (x,y), no solution \emptyset, or infinite solutions ∞.</p> <p>21. $x = \frac{1}{2}y$ $4x - 2y = 12$</p>
22. $2x + y = 1$ $3x - y = 14$	23. $5x + 3y = -9$ $2x - 5y = -16$

Simplifying Radical Expressions			
24. $\sqrt{24}$	25. $(\sqrt{17})^2$	26. $\sqrt{\frac{80}{25}}$	27. $\frac{\sqrt{5}}{\sqrt{3}}$
28. $\sqrt{\frac{1}{4}}$	29. $5\sqrt{18}$	30. $(2\sqrt{3})^2$	31. $6\sqrt{24}$

Simplifying Rational Expressions

32. $\frac{14}{70}$	33. $\frac{18a}{36}$	34. $\frac{2c - 2d}{2c + 2d}$
35. $\frac{6r + 12}{6}$	36. $\frac{5bc}{10b^2}$	37. $\frac{-8y^3}{2y}$
38. $\frac{33ab - 22b}{11b}$	39. $\frac{b^2 - 25}{b^2 - 12b + 35}$	40. $\frac{a^2 + 8a + 16}{a^2 - 16}$

Factoring by GCF/Factoring Trinomials

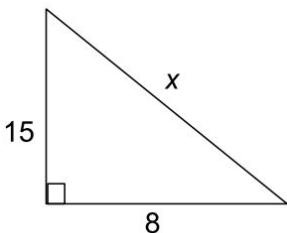
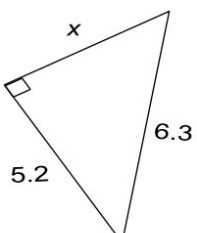
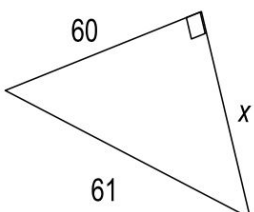
41. $6a^2 + a$	42. $2x^3 + 8x^2 + 6x$	43. $x^2 - 16$
44. $x^2 - 10x + 21$	45. $c^2 + c - 42$	46. $k^2 - 6k + 8$
47. $9f^2 - 12f + 4$	48. $25d^2 + 80d + 64$	49. $15k^2 - k - 2$

Solving Equations by Factoring

50. $x^2 + 5x - 6 = 0$	51. $4x^2 + 15 = 17x$	52. $x^2 = 20x - 36$
53. $x^2 + 8x = 20$	54. $8x^2 + 10x - 25 = 0$	55. $2x^2 - 5x = 7$

Pythagorean Theorem

Find the value of x. Simplify and round your answer to the nearest hundredth!

<p>56. </p>	<p>57. </p>	<p>58. </p>
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Find the distance, midpoint & slope for each set of points.

59. (9,7) and (1,1)	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$
60. (5,2) and (8,-2)	