

NAME _____

Please complete this packet by the first day of school.

DIRECTIONS/INFORMATION:

- This packet contains problems that represent the types of mathematics knowledge your teacher expects you to have before entering Geometry Honors.
- If you have difficulty with any of the problems in the packet, refer back to your classroom notes from the school year and use the website links provided in each section of the packet or any other online resource.
- A diagnostic quiz will be given soon after school starts to assess the skills and concepts addressed in this packet. It is not our intention to re-teach any of the content in the packet, however, prior to the quiz:
 - You will be provided with the correct answers for all problems in the Summer Math Packet during the first week of school.

Thank you in advance for completing this packet by the first day of school. We look forward to working with you in September.

The Math Teachers

Geometry H Students Summer Packet

Simplifying and Evaluating Expressions

Simplify and/or evaluate the following expressions.

1. The sum of the interior angles of an n -sided polygon is calculated using the formula $(n-2)(180^\circ)$. Find the sum of the interior angles of a pentagon.
2. The sum of the interior angles of an n -sided polygon is calculated using the formula $(n-2)(180^\circ)$. Find the sum of the interior angles of an octagon.
3. The measure of one interior angle in a regular polygon is calculated using the formula $\frac{(n-2)(180^\circ)}{n}$. Find the measure of one interior angle in a regular hexagon.
4. The sum of the interior angles of a polygon is calculated using the formula $(n-2)(180^\circ)$. Find the total number of sides of the polygon when the sum of the interior angles is 1440° .
5. The formula for calculating the perimeter of a rectangle is $P = 2w + 2l$. Solve the formula for w .
6. The formula for calculating the volume of a sphere is $V = \frac{4}{3}\pi r^3$. Solve the formula for r .

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Additional support and practice

Khan Academy: Order of Operations

<https://www.khanacademy.org/math/arithmetic/multiplication-division/order-of-operations/v/introduction-to-order-of-operations>



<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/variable-and-expressions/v/evaluating-expressions-with-two-variables>



Solving Equations

Solve each equation. If your answer is not a whole number than give your answer in simplified fraction form.

1. $-22 = 4x + 6$

2. $8x + 4 = -4 + 2x$

3. $4m - 2 = 6m + 4$

4. $5p + 15 = p - 3$

5. $x^2 = 49$

6. $(x + 1)(2x - 5) = 0$

7. $x(2x + 7)(3x - 5) = 0$

8. $|x - 6| = 5$

9. $|2x + 3| = 9$

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10. $3(x - 7) + 10 = 1$

Additional support and practice

Khan Academy: Variables on both sides

<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/equations-3>



Khan Academy: Absolute Value Equations

<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/u02-l2-t2-we1-absolute-value-equations-avi>

Solving Proportions

Solve each proportion. If your answer is not a whole number than give your answer in simplified fraction form.

1. $\frac{10}{8} = \frac{y}{10}$

2. $\frac{9}{6} = \frac{x}{4}$

3. $\frac{4}{3} = \frac{6}{n}$

4. $\frac{7}{a} = \frac{9}{6}$

5. $\frac{7}{5} = \frac{6}{y}$

6. $\frac{5}{6} = \frac{n+1}{10}$

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$$7. \frac{5}{r+9} = \frac{6}{r-5}$$

$$8. \frac{9}{k-7} = \frac{4}{k}$$

$$9. \frac{2}{8} = \frac{n+3}{n-3}$$

$$10. \frac{n-5}{6} = \frac{n-6}{4}$$

Additional support and practice

Khan Academy: Find an Unknown in a Proportion

https://www.khanacademy.org/math/algebra/rational-expressions/ratios_algebra/v/find-an-unknown-in-a-proportion



Word Problems

Solve each word problem by writing an equation and solving algebraically. You should not use guess and check.

1. 331 students went on a field trip. Six buses were filled and 7 students traveled in cars. How many students were in each bus?
2. Aliyah had \$24 to spend on seven pencils. After buying them she had \$10. How much did each pencil cost?
3. The sum of three consecutive numbers is 72. What are the smallest of these numbers?
4. The sum of three consecutive even numbers is 48. What are the smallest of these numbers?

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5. You bought a magazine for \$5 and four erasers. You spent a total of \$25. How much did each eraser cost?
6. Maria bought seven boxes. A week later half of all her boxes were destroyed in a fire. There are now only 22 boxes left. With how many did she start?
7. Sumalee won 40 super bouncy balls playing horseshoes at her school's game night. 14 of them are red. If the only other color of the bouncy balls is green, what is the probability of choosing one of Sumalee's green bouncy balls?
8. What is the probability of not selecting a vowel from the letters in the English alphabet?

Additional support and practice

Khan Academy: Basic Linear Equation Word Problems

<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/basic-linear-equation-word-problem>



Factoring Trinomials

Factor each completely.

1. $b^2 + 8b + 7$

2. $m^2 + m - 90$

3. $n^2 - 10n + 9$

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4. $m^2 + 2m - 24$

5. $k^2 - 13k + 40$

6. $n^2 - n - 56$

7. $b^2 - 6b + 8$

8. $a^2 + 6a + 8$

9. $t^2 - 5t + 6$

10. $b^2 + 11b + 18$

Additional support and practice

Khan Academy: Factoring Quadratic Expressions

https://www.khanacademy.org/math/algebra/quadratics/factoring_quadratics/v/factoring-quadratic-expressions



Mangahigh – Factoring Quadratics in form $x^2 + bx + c$

http://www.mangahigh.com/en-us/maths_games/algebra/factorising/factorise-quadratics-in-form-xbxc



Solving Systems of Equations Using the Substitution Method

Standard being addressed - A1.1.2.2.1: Write and/or solve a system of linear equations using graphing, substitution and/or elimination.

Solve each system of equations by substituting.

1. $y = 6x - 11$
 $-2x - 3y = -7$

6. $y = 5x - 7$
 $-3x - 2y = -12$

2. $2x - 3y = -1$
 $y = x - 1$

7. $-4x + y = 6$
 $-5x - y = 21$

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

8. $-7x - 2y = -13$
 $x - 2y = 11$

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4. $-3x - 3y = 3$
 $y = -5x - 17$

9. $-5x + y = -2$
 $-3x + 6y = -12$

5. $y = -2$
 $4x - 3y = 18$

10. $-5x + y = -3$
 $3x - 8y = 24$

Additional support and practice

Khan Academy: Solving Linear Systems by Substitution

<https://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/fast-systems-of-equations/v/solving-linear-systems-by-substitution>



Solving Systems of Equations Using the Elimination Method

Solve each system of equations by elimination.

1. $-4x - 2y = -12$
 $4x + 8y = -24$

6. $8x + y = -16$
 $-3x + y = -5$

2. $4x + 8y = 20$
 $-4x + 2y = -30$

7. $-6x + 6y = 6$
 $-6x + 3y = -12$

3. $x - y = 11$
 $2x + y = 19$

8. $7x + 2y = 24$
 $8x + 2y = 30$

4. $-6x + 5y = 1$

9. $5x + y = 9$

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$$6x + 4y = -10$$

$$10x - 7y = -18$$

5. $-2x - 9y = -25$
 $-4x - 9y = -23$

10. $-4x + 9y = 9$
 $x - 3y = -6$

Additional support and practice

Khan Academy: Solving Linear Systems by Elimination

<https://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/fast-systems-of-equations/v/solving-systems-of-equations-by-elimination>

