WOODSTREAM
CHRISTIAN ACADEMY

SCHOOL OF RHETORIC

10TH GRADE
SUMMER PACKET

Woodstream Christian Academy
School of Rhetoric Summer Math Packet
Incoming Geometry Students

NAME_____

Please complete this packet by the first day of school.

DIRECTIONS/INFORMATION:

- This packet contains review problems from your most recent math class and represents the types of mathematics knowledge your teacher expects you to have before entering Geometry.

- The packet is divided into sections that will allow you to develop a schedule for completing the entire packet. Follow the directions given in each section of the packet.

- 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.
    - After using the website information, circle the problems about which you still have questions.

    - 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 we will review the Summer Math Packet and you will be given the opportunity to discuss any areas of concern.

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

Dr. Bailey
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1: Simplifying and Evaluating Expressions

Standard being addressed - M7.A.2.1.1: Use the order of operations to simplify numerical expressions; M8.A.2.1.1: Simplify numeric expressions involving integers, using the order of operations; **M8.B.2.1.1:** Determine the total number of degrees in the interior angles of a polygon in 3 - 8 sided figures; **M8.B.2.1.2:** Determine the measurement of one interior angle of a regular polygon; **M8.B.2.1.3:** Determine the number of sides of a polygon given the total number of degrees in the interior angles; **M8.C.1.2.1:** Use the Pythagorean Theorem to find the measure of a missing side of a right triangle (formula provided on the reference sheet – whole numbers only).

Simplify and/or evaluate the following expressions.

1. The sum of the interior angles of a polygon is calculated using the formula (n-2)(180˚). Find the sum of the interior angles of a pentagon. ($n = 5$)

2. The sum of the interior angles of a polygon is calculated using the formula, $(n - 2)180^\circ$. Find the sum of the interior angles of an octagon. ($n = 8$)

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. ($n = 6$)

4. The sum of the interior angles of a polygon is calculated using the formula $(n - 2)180°$. 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 $P = 2l + 2w$. Solve the formula for w.

6. The formula for calculating the surface area of a sphere is $SA = 4\pi r^2$. Solve the formula for r.

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

2: Simplifying Radical Expressions

Standard being addressed - A1.1.1.1.2: Simplify square roots (e.g., $\sqrt{24} = 2\sqrt{6}$)

Simplify.

1. $\sqrt{125}$

2. $\sqrt{512}$

3. $\sqrt{450}$

4. $\sqrt{80}$

5. $\sqrt{147}$

6. $\left(2\sqrt{5}\right)^2$

7. $\sqrt{200a^3}$

8. $4\sqrt{2}*8\sqrt{3}$

9. $3\sqrt{6}*7\sqrt{12}$

10. $7\sqrt{5} - 8 + 2\sqrt{45} - 6$

Additional support and practice

Khan Academy: Simplifying radicals

https://www.khanacademy.org/math/arithmetic/exponents-radicals/radical-radicals/v/simplifying-radicals

Mangahigh: Simplifying square roots

http://www.mangahigh.com/en_us/maths_games/number/surds/simplify_square_roots

3: Solving Equations

Standard being addressed - A1.1.2.1.1: Write, solve and/or apply a linear, quadratic or absolute value equation.

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. $4m - 2 = 6m + 44$

5. $x^2 = 49$

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

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

8. $\lfloor x - 6 \rfloor = 5$

9. $\lfloor 2x + 3 \rfloor = 9$

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: Solving a quadratics by factoring

https://www.khanacademy.org/math/algebra/quadratics/quadratic_odds_ends/v/solving-a-quadratic-by-factoring

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

4: Solving Proportions
Standard being addressed - 2.1.A1.C: Use ratio and proportion to model relationships between quantities.

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

7. $\frac{5}{r+9} = \frac{6}{4-5}$

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

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

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

<u>Additional support and practice</u>

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

5: Word Problems
Standard being addressed - M7.A.2.2.2: Solve for a variable in a given proportion; M7.A.2.2.3: Use proportions to determine if two quantities are equivalent (e.g., similar figures, prices of different sized items, etc); M7.A.2.2.5: Select and/or use ratios or proportions to solve problem.; 2.1.A1.C: Use ratio and proportion to model relationships between quantities.

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?

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 bouncey 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

6: Factoring Trinomials
Standard being addressed - A1.1.1.5.2: Factor algebraic expressions, including difference of squares and trinomials.

Factor each completely.

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

2. $m^2 + m - 90$

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

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

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

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

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

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

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

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

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

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

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

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

<u>Additional support and practice</u>

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

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

http://www.mangahigh.com/en_us/maths_games/algebra/simultaneous_equations/solve_simultaneous_equations_substitution_method

8: Solving Systems of Equations Using the Elimination 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 elimination.

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

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

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

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

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

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

4. $-6x + 5y = 1$
   $6x + 4y = -10$

9. $5x + y = 9$
   $10x - 7y = -18$

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

Mangahigh – Solve simultaneous equations - elimination method

http://www.mangahigh.com/en_us/maths_games/algebra/simultaneous_equations/solve_simultaneous_equations_elimination_method

Woodstream Christian Academy

Summer Reading

School of Rhetoric

English Department

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SUMMER READING ASSIGNMENT

Read the two books with an ' * ' and select one additional book from the list. Write a response to one of the reflection questions for each of the books that you read. This assignment is due on August 31, 2020.

Grades 7 and 8

Anthony Burns, Virginia Hamilton*
Great Expectations, Dickens
Captains Courageous, Kipling*
The Watsons Go to Birmingham, Curtis
Read an average of 20 pages per day

Format
Heading:
Student's Name
Title of Book
Date
250-word response
Double spaced
Times New Roman Font, 12 point
1 inch margins on all four sides

Grades 9-12

Othello, Shakespeare
Stolen, Bell*
A Picture of Freedom, McKissack
In His Steps (Updated), Sheldon*
Read an average of 25 pages per day

Format
Heading:
Student's Name
Title of Book
Date
300-word response
Double spaced
Times New Roman Font, 12 point
1 inch margins on all four sides

REFLECTION CHOICES			
How has your text affected you as a reader?	How has your reading process been improved or changed?	What personal connections are you making with your text?	What would you ask or tell the author of your text if you met them?
How has your understanding of the complexity of human relationships increased?	What connections do you draw between your text and other texts you have read?	How have you improved as a reader by reading your text?	In what ways has the text helped you develop empathy?
What have you learned about culture or society or history from your text?	What does your text reveal about you as a person?	What would you tell another student to get them interested in your book?	How has your book impacted the way you think about a specific subject or topic?