

# WOODSTREAM CHRISTIAN ACADEMY



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## SCHOOL OF RHETORIC

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### 12TH GRADE SUMMER PACKET

Answer the following questions. Solutions will be provided when we return in the fall. This packet will be checked for completion.

Part 1

**Factor Completely.**

1)  $18y^3 + 24y^2 - 12y$

1) \_\_\_\_\_

2)  $3x^3 + x^2 + 12x + 4$

2) \_\_\_\_\_

3)  $x^2 - 22x + 40$

3) \_\_\_\_\_

4)  $t^4 - 22t^2 + 40$

4) \_\_\_\_\_

5)  $64x^8 - 16y^4$

5) \_\_\_\_\_

6)  $6x^3 + 48$

6) \_\_\_\_\_

7)  $6x^2y - 21x^2 - 4y + 14$

7) \_\_\_\_\_

8)  $28x^4 + 16x^3 - 80x^2$

8) \_\_\_\_\_

9)  $x^6 - 4x^2$

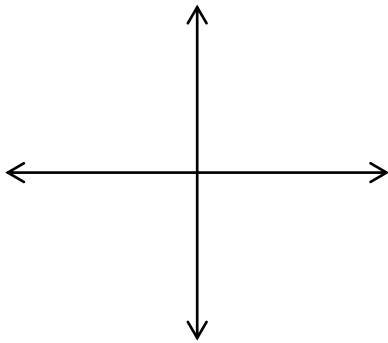
9) \_\_\_\_\_

10)  $x^3 - 125$

10) \_\_\_\_\_

Part 2

1. Sketch a complete graph of  $y = (x-1)^2 - 4$  .  
Include: x & y intercepts, vertex, and axis of symmetry.



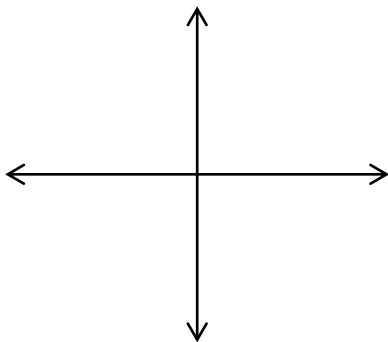
x-intercepts: \_\_\_\_\_

y-intercepts: \_\_\_\_\_

vertex: \_\_\_\_\_

axis of symmetry: \_\_\_\_\_

2. Sketch a complete graph of  $y = -(x+3)^2 + 1$  .  
Include: x & y intercepts, vertex, and axis of symmetry.



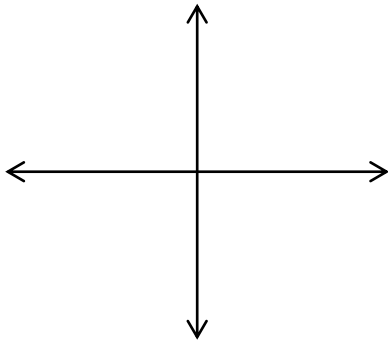
x-intercept(s): \_\_\_\_\_

y-intercept: \_\_\_\_\_

vertex: \_\_\_\_\_

axis of symmetry: \_\_\_\_\_

3. Sketch a complete graph of  $y = (x-3)^2$ .  
Include: x & y intercepts, vertex, and axis of symmetry.



x-intercept(s): \_\_\_\_\_

y-intercept: \_\_\_\_\_

vertex: \_\_\_\_\_

axis of symmetry: \_\_\_\_\_

4. Solve each of the equations for x:

a.  $x^2 - 1x = 110$

4a) \_\_\_\_\_

b.  $3x^2 - 8x + 5 = 0$

4b) \_\_\_\_\_

c.  $x^2 + x - 1 = 0$

4c) \_\_\_\_\_

5. Determine a quadratic equation that has 7 and -4 as roots

5) \_\_\_\_\_

6. Determine a quadratic equation that has  $4 + \sqrt{3}$  as a root

6) \_\_\_\_\_

7. Determine a quadratic equation that has  $3 - i$  as a root

7) \_\_\_\_\_

Part 3

1. Simplify, using no negative exponents:  $\left(\frac{2}{xy^3z^2}\right)^{-1}$  1) \_\_\_\_\_

2. Simplify, using no negative exponents:  $(2xy^{-3})^0$  2) \_\_\_\_\_

3. Simplify, using no negative exponents:  $\left(\frac{2x^4y^{-3}z}{5x^{-2}y^5z^2}\right)^3$  3) \_\_\_\_\_

4. Simplify, use no negative exponents:  $(3x^{-4}y^{-3})(4x^3y^9z)$  4) \_\_\_\_\_

5. Simplify, using no negative exponents:  $\left(\frac{x^5y^{-2}}{3x^{-2}y^5}\right)^{-2}$  5) \_\_\_\_\_

Part 4

**Rewrite in simplest radical form:**

1.  $\sqrt{360x^{10}y^3z^7}$

1) \_\_\_\_\_

2.  $\sqrt[3]{108x^5y^{10}z^{12}}$

2) \_\_\_\_\_

3.  $\sqrt[3]{\frac{x^2}{4}}$

3) \_\_\_\_\_

4.  $\frac{x\sqrt{3}}{3-\sqrt{x}}$

4) \_\_\_\_\_

5.  $\frac{1}{1-2\sqrt{5}}$

5) \_\_\_\_\_

**Solve for x:**

6.  $\sqrt{\frac{2x}{5}} = \sqrt{3x - 58}$

6) \_\_\_\_\_

7.  $\sqrt{x-1} = x-7$

7) \_\_\_\_\_

8.  $\sqrt{x} - \sqrt{x-4} = 2$

8) \_\_\_\_\_

Part 5

1. Multiply or divide and simplify as much as possible:

a.  $\frac{m^2-49}{8m} \cdot \frac{3m}{m+7}$

1a) \_\_\_\_\_

b.  $\frac{s^2+5s}{s^2-s-12} \div \frac{s+5}{s-4}$

1b) \_\_\_\_\_

2. Add or subtract and simplify as much as possible:

a.  $\frac{3}{x} + \frac{7}{y}$

2a) \_\_\_\_\_

b.  $\frac{x^2-5x-6}{(x+5)(x-2)} + \frac{4x+12}{(x+5)(x-2)}$

2b) \_\_\_\_\_

$$c. \frac{x^2-5x-6}{x^2+10x+9} - \frac{1}{x+9}$$

2c) \_\_\_\_\_

$$d. \frac{7}{3x^2-6x} + \frac{x^2}{x^2-4x+4}$$

2d) \_\_\_\_\_

3. Solve:

$$a. \frac{2}{z-2} - \frac{3}{z+4} = 0$$

3a) \_\_\_\_\_

$$b. \frac{x}{x-1} + \frac{4}{x+4} = \frac{16x}{x^2+3x-4}$$

3b) \_\_\_\_\_



4. Simplify the complex fractions:

a.  $\frac{\frac{1}{x} - 2}{\frac{1}{x} + 5}$

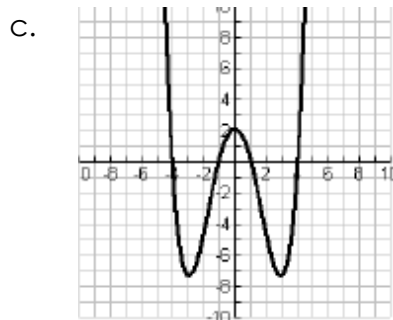
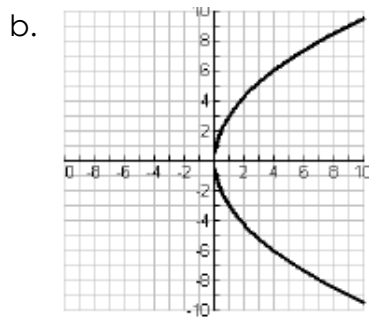
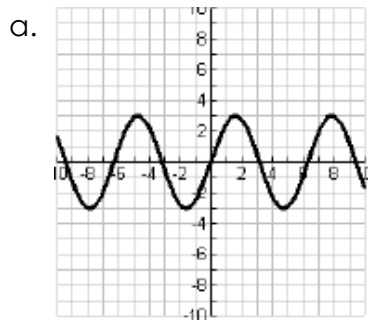
4a) \_\_\_\_\_

b.  $\frac{\frac{1}{a} + \frac{1}{b}}{\frac{1}{a} - \frac{1}{b}}$

4b) \_\_\_\_\_

Part 6

1. Determine whether each of the following are functions:



1a) \_\_\_\_\_ 1b) \_\_\_\_\_ 1c) \_\_\_\_\_

2. Find the domain:  $\{(0, -2), (4, -9), (18, -12)\}$

2) \_\_\_\_\_

3. Find  $g(0)$ ,  $g(1)$ , and  $g(-3)$  for  $g(x) = -x^2 - 6x + 2$

3) \_\_\_\_\_

4. Find the domain and range of the functions below:

a.  $f(x) = x^2 - 9$

b.  $g(x) = \sqrt{x - 4}$

4a) Domain: \_\_\_\_\_

4b) Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Range: \_\_\_\_\_

5. If  $f(x) = 3x - 1$  and  $g(x) = x^2$ , evaluate the following:

a.  $f(g(2))$

c.  $f(g(x))$

b.  $f(f(5))$

d.  $g(f(x))$

5a) \_\_\_\_\_

5b) \_\_\_\_\_

5c) \_\_\_\_\_

5d) \_\_\_\_\_

*Woodstream Christian Academy*  
*Summer Reading*



*School of Rhetoric*  
*English Department*



## 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?