

# WOODSTREAM CHRISTIAN ACADEMY



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## SCHOOL OF RHETORIC

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### 11TH GRADE SUMMER PACKET

NAME \_\_\_\_\_

Please complete this packet prior to 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 Algebra 2.
- 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 assessment 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 address your questions.

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  
bbailey@WoodstreamAcademy.com

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School of Rhetoric Summer Math Packet  
Incoming Algebra 2 Students**

**Topic 1**

**1. Percentages**

- a. What is 15% of 250
- b. 150 is what percent of 750?
- c. Last week the stock market went down from 15,235 to 13,784. What was the percent decrease to the nearest whole percent?
- d. 60% of what number is 20?
- e. A local department store gives a customer an additional 15% off the price of a television if they use their department store credit card during the annual 10% savings sale. If the original price of the TV is \$650, find the sale price for a customer who is using their department store credit card.

**Additional Supports & Practice**

<http://www.brightstorm.com/math/algebra/pre-algebra/percents-problem-3/>

<http://www.purplemath.com/modules/percntof3.htm>

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**2. Ratios & Proportions**

- a. Two-fifths of the automobiles entering the city every morning will be parked in city parking lots. These cars fill 5282 parking spaces. How many cars enter the city each morning?
  
  
  
  
  
  
  
  
  
  
- b. The new City Council representative, Mr. Hughes, won by a ratio of 6 to 5, with 2343 total votes cast. How many votes did Mr. Hughes get?
  
  
  
  
  
  
  
  
  
  
- c. Maria sketched plans for a rectangular garden on grid paper. The rectangle she drew is 2.5 squares wide and 4 squares long. If each side of each square on the grid paper represents 3.5 feet, find the length and width of the actual garden.
  
  
  
  
  
  
  
  
  
  
- d. Sam's car used 5 gallons of gas to travel 142 miles. How much gas will Sam need to travel 317 miles?
  
  
  
  
  
  
  
  
  
  
- e. The ratio of boys to girls in a school is approximately 3 to 5. There are 800 students in the school. How many boys are in the school? How many girls are in the school?

**Additional Support & Practice**

<http://www.purplemath.com/modules/ratio4.htm>

<http://www.surfnetkids.com/video/752/ratios-and-proportions/>

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**Topic 2**

**Operations with Real Numbers and Expressions**

Simplify each of the following:

a)  $\frac{1}{6} - 5 - \frac{1}{15}$

b)  $49^2 - 5 - 14 - 5 - 21 - 7$

c)  $-15 - (-6)$

d)  $-7 - 9$

e)  $-15 - 6$

f)  $35 - 7$

g)  $\frac{3 - 2 - 6 - 1 - 3^2}{1 - 2^2 - 1 - 1}$

h)  $\frac{4}{5} - \frac{3}{7}$

**Additional Supports and Practice**

<http://www.purplemath.com/modules/fraction4.htm>

<http://www.purplemath.com/modules/orderops.htm>

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2. Simplify each of the following:

a)  $(23a^2 - 17b)(3a^2 - b - 5)$

b)  $(5a - 2b)(a - 7b - 2)$

c)  $\frac{x - 1}{2x^2 - 2}$

3. Multiply and Simplify.

a)  $(5 - 2x)(4 - )$

b)  $(a - 3)^2$

c)  $(3x - 2)(2x^2 - x - 5)$

**Additional Supports and Practice**

<http://www.purplemath.com/modules/polydefs2.htm>

<http://www.purplemath.com/modules/polymult.htm>

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**Evaluating Expressions**

a)  $x^2y^2 - 2xy$  if  $x = 9$  and  $y = 2$

b)  $2a^2b - 3ab^2$  if  $a = 2$  and  $b = 3$

**Additional Supports and Practice**

<http://www.purplemath.com/modules/evaluate.htm>

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**Exponents**

Simplify each of the following:

a)  $a^3 \cdot a^2 \cdot a$

b)  $b^3 \cdot b^5$

c)  $\frac{5m^7}{m^3}$

d)  $293^0$

e)  $2x \cdot 5x^5$

f)  $\frac{30y^9}{6y^3}$

**Additional Supports and Practice**

<http://www.purplemath.com/modules/exponent.htm>



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**Topic 3**

**Probability & Statistics**

- a. What is the probability of drawing a king from a standard deck of 52 cards?
- b. A bag contains 8 black marbles, 5 white marbles, and 1 red marble. What is the probability of selecting a red marble?
- c. A bag contains 8 black marbles, 5 white marbles, and 1 red marble. What is the probability of selecting a red marble followed by a white marble if there is NO replacement?
- d. A bag contains 8 black marbles, 5 white marbles, and 1 red marble. What is the probability of selecting a red marble followed by a white marble if there is replacement?
- e. When spinning a spinner numbered 1 to 5, what is the probability of spinning a multiple of 2?
- f. The probability of rain on Saturday is  $\frac{1}{10}$  and the probability of rain on Sunday is  $\frac{3}{10}$ . What is the probability that it will rain on both Saturday and Sunday?

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g. During 10 weeks of babysitting, Sam earned the following dollar amounts:

\$30, \$33, \$35, \$50, \$50, \$60, \$65, \$90, \$50, \$35

Find the mean to the nearest dollar

Find the median

Find the mode

**Additional Supports & Practice**

<https://www.khanacademy.org/math/trigonometry/prob-comb/basic-prob-prec/v/basic-probability>

<https://www.khanacademy.org/math/trigonometry/prob-comb/independent-events-prec/v/compound-probability-of-independent-events>

<http://www.purplemath.com/modules/meanmode.htm>

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Topic 4

Linear Equations & Inequalities

Solve each of the following:

a)  $5x - 12 = 48$

b)  $3b - 1 = 2b - 5b + 4 = 2b$

c)  $\frac{x - 1}{x - 2} = \frac{3}{2}$

d)  $\frac{3}{4}x - \frac{5}{8} = \frac{7}{12}$

e)  $x - 9 = 3x - 5$

f)  $18 = 9 - x - 3$

Additional Support and Practice

<http://www.brightstorm.com/math/algebra-2/linear-equations/solving-linear-equations/>

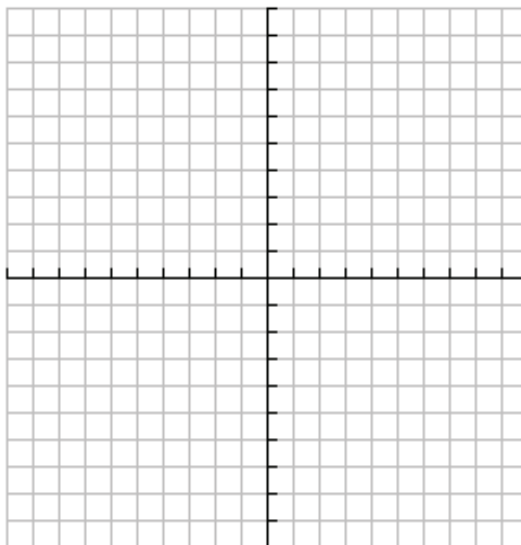
<http://www.purplemath.com/modules/solvelin3.htm>

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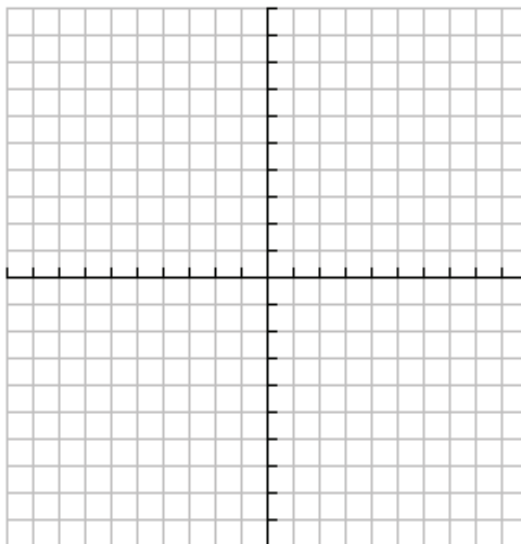
2. Graphing Linear Equations

Graph each of the following:

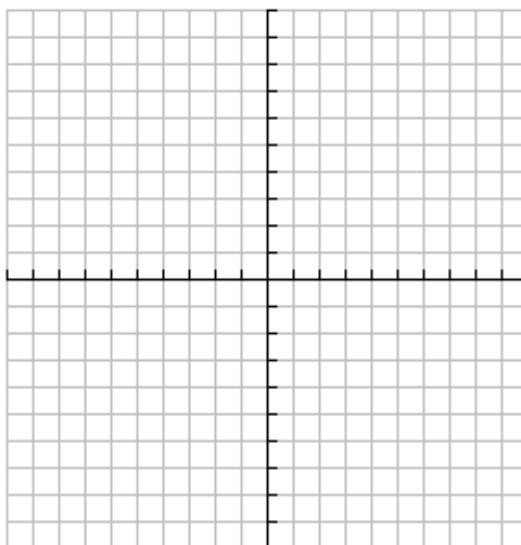
a)  $y = \frac{1}{4}x + 3$



b)  $y = 3x + 2$

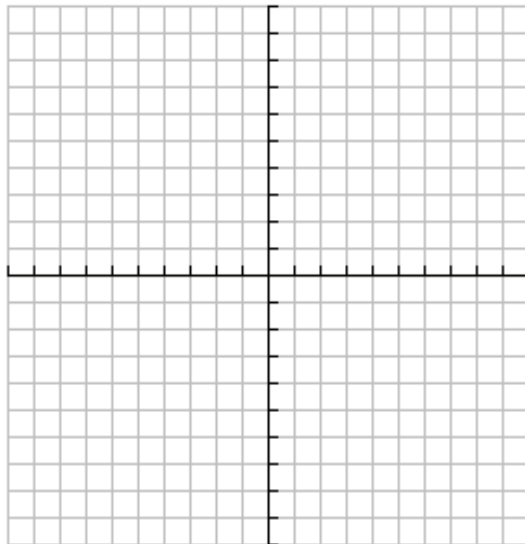


c)  $x + y = 4$

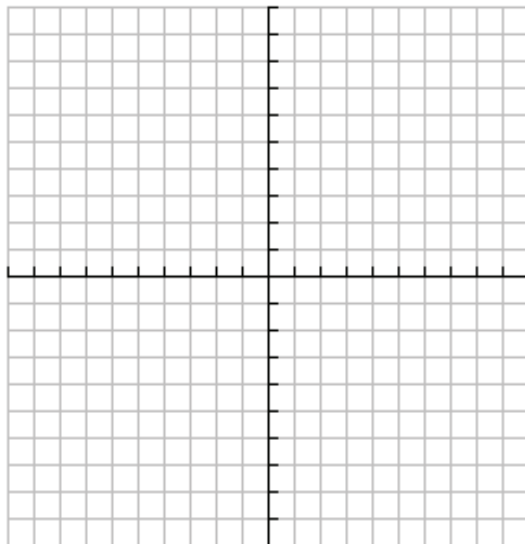


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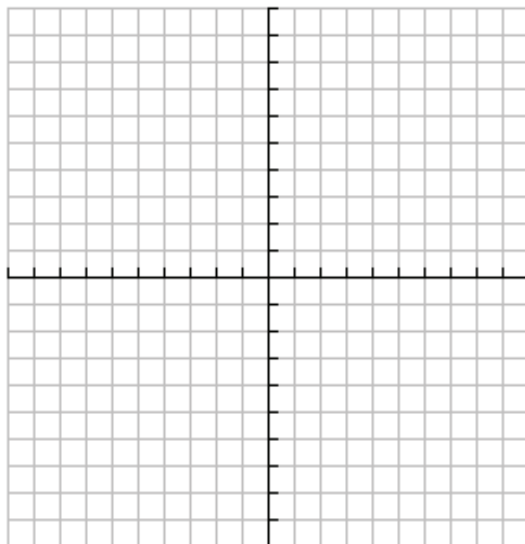
d)  $2x - 3y = 12$



e)  $y = 5$



f)  $x = 3$



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**Additional Support and Practice**

[http://www.youtube.com/watch?v=07z\\_75PgjPg](http://www.youtube.com/watch?v=07z_75PgjPg)

<http://www.purplemath.com/modules/slopgrph.htm>

3. Solve and graph a one variable inequality.

Solve the inequality and graph the solution on a number line.

$$-2x - 4 \leq 18$$

**Additional Support and Practice**

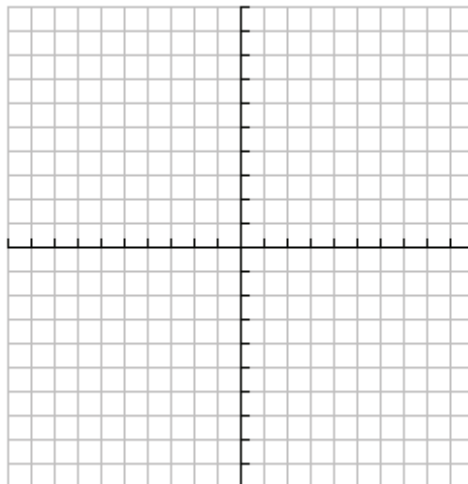
<http://www.youtube.com/watch?v=0X-bMeIN53I>

<http://www.purplemath.com/modules/ineqsolv.htm>

4. Graphing Linear Inequalities

Graph the following linear inequality

$$2x - y \leq 8$$



**Additional Support and Practice**

[http://www.youtube.com/watch?v=eoI80IQ\\_g6k](http://www.youtube.com/watch?v=eoI80IQ_g6k)

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**Topic 5**

**Finding Slopes & y-Intercepts**

Find the slope and the y-intercept for each of the following lines:

a)  $y = 8x + 5$

b)  $5x + 10y = 250$

c) Find the x- and y-intercepts for the line  $3x + 7y = 42$

d) Find the slope of the line containing the points  $(0, 3)$  and  $(-2, -10)$ .

e) Miles works 18 hours and makes \$153. The following week, he works 26 hours and makes \$221.

1. Write 2 ordered pairs that represent the information given.
2. Determine the slope of the line through the two points.
3. Explain the meaning of the slope in the context of this problem.

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**Additional Supports & Practice**

<http://www.purplemath.com/modules/slopyint.htm>

<http://www.purplemath.com/modules/solvelit2.htm>

**Writing Equations of Lines**

- a) Write the equation of the line that contains the point (2,5) and is parallel to the x-axis.
- b) Write the equation of the line that has x-intercept 5 and y-intercept -2.
- c) Connie, the electrician, charges \$45 for a house call and \$34 per hour for each hour spent working on the wiring. If  $x$  is the number of hours Connie worked and  $y$  is total bill, write a linear equation that models this situation.
- d) Write the equation of the line that has the same y-intercept as  $x - 3y = 6$  and contains the point (5, -1).

**Additional Supports & Practice**

<http://www.youtube.com/watch?v=oG19cFGRFeA>

<http://www.purplemath.com/modules/strtlneq.htm>



Topic 6

Systems of Linear Equations

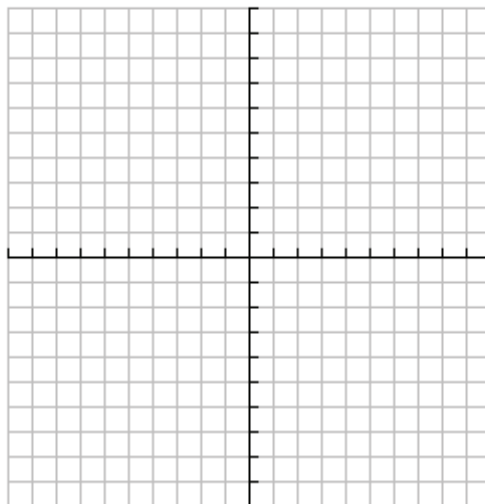
a. Is  $(4, 2)$  a solution to the system  $\begin{cases} x + y = 6 \\ 2x + y = 6 \end{cases}$ ? Justify your answer.

b. Solve the following system using substitution:  $\begin{cases} y = x + 10 \\ 5y + 10x = 10 \end{cases}$

c. Solve the following system using elimination:  $\begin{cases} 2x + 3y = 12 \\ 4x + 10y = 16 \end{cases}$

d. Solve the following system graphically:

$$\begin{cases} x + y = 2 \\ 2x + y = 7 \end{cases}$$



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- e. Write a system of equations that can be used to solve the following problem and then solve the problem.

Be sure to identify your variables and SHOW ALL WORK.

Jeremy, a farmer, paid 10 men and 8 boys \$970 for 1 day's work. A week later he paid 12 men and 6 boys \$1020 for a day's work. The men were paid one wage and the boys were paid at another wage. Find the daily wage that was paid to the men and the boys.

- f. Stefano bought a total of 8 pounds of peanuts and cashews. Peanuts,  $p$ , cost \$2 per pound and cashews,  $c$ , cost \$5 per pound. The total amount Stefano spent on peanuts and cashews was \$25. Which system of equations could be solved to find out how many pounds of peanuts and cashews Stefano bought?

a) 
$$\begin{aligned} 2p + 5c &= 25 \\ p + c &= 8 \end{aligned}$$

b) 
$$\begin{aligned} 5p + 2c &= 25 \\ p + c &= 8 \end{aligned}$$

c) 
$$\begin{aligned} 2p + 5c &= 8 \\ p + c &= 25 \end{aligned}$$

d) 
$$\begin{aligned} 2p &= 8 \\ 5c &= 25 \end{aligned}$$

**Additional Support & Practice**

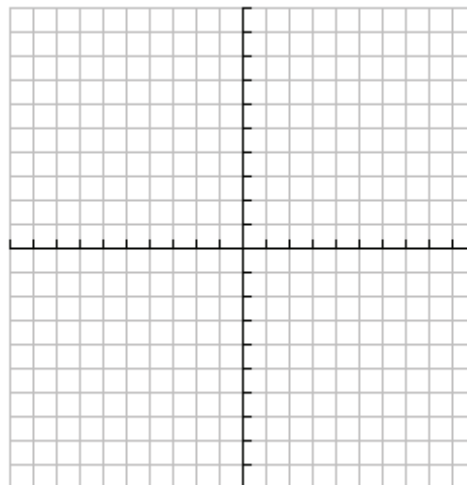
<http://www.youtube.com/watch?v=5DBs4IY9APY>

<http://www.youtube.com/watch?v=sS0BVEvVmlQ>

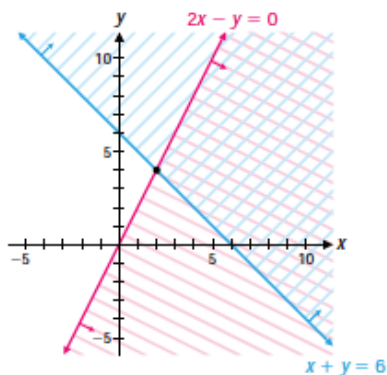
<http://www.purplemath.com/modules/systlin2.htm>

**Systems of Linear Inequalities**

- a. Graph the system of inequalities:  
 $y < x + 1$   
 $2x < y < 8$



- b. Which of the following systems of inequalities is graphed below:



- a.  $2x - y \leq 0$   
 $x + y \geq 6$
- b.  $2x - y \geq 0$   
 $x + y \geq 6$
- c.  $2x - y > 0$   
 $x + y > 6$

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c. Which of the following is a solution to the system:  $\begin{cases} 3x + y < 12 \\ x + y > 4 \end{cases}$  ?

- a. (3,1)
- b. (4,3)
- c. (2,6)
- d. (6,0)

d. At an ice cream parlor, ice cream cones cost  $x$  dollars each and sundaes cost  $y$  dollars each. The total cost of 4 cones and 3 sundaes is more than \$20. The total cost of 5 cones and one sundae is less than \$16. Which system models this situation?

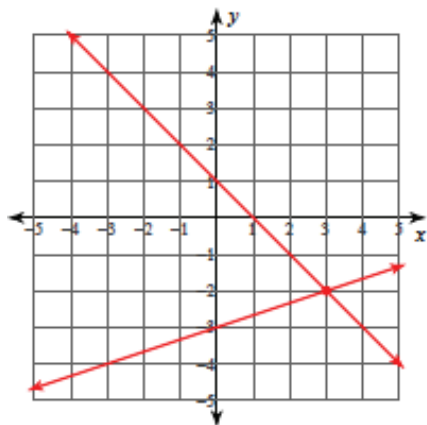
e.  $\begin{cases} 4x + 3y < 20 \\ 5x + y > 16 \end{cases}$

f.  $\begin{cases} 4x + 3y > 20 \\ 5x + y < 16 \end{cases}$

g.  $\begin{cases} 4x + 3y \geq 20 \\ 5x + y \leq 16 \end{cases}$

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- e. The graph below shows the boundary lines of the system of inequalities:  $y > \frac{1}{3}x - 3$   
 $y \leq -x + 1$
- Shade the graph appropriately to determine the feasible region.



**Additional Support & Practice**

<http://www.purplemath.com/modules/syslneq.htm>

<http://www.brightstorm.com/math/algebra/solving-systems-of-equations/systems-of-inequalities-problem-4/>

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**Topic 7**

**Radicals**

Simplify each of the following:

a)  $\sqrt{25}$

b)  $\sqrt{48}$

c)  $\sqrt{3} \square \sqrt{6}$

d)  $\frac{\sqrt{60}}{\sqrt{6}}$

e)  $5\sqrt{a} \square 7\sqrt{a}$

f)  $\sqrt{12a^6b^3}$

g) Determine 3 values of  $x$  that will make  $\sqrt{x \square 7}$  a real number.

**Additional Supports & Practice**

<http://www.purplemath.com/modules/radicals.htm>

<http://www.brightstorm.com/math/algebra/radical-expressions-and-equations/simplifying-radical-expressions-problem-1/>

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**Factoring**

Completely factor each of the following:

a)  $y^2 - 2y - 35$

b)  $x^2 - 4x - 12$

c)  $b^2 - 6b - 9$

d)  $3x^2 - 75$

e)  $30x^5 - 21x^2 - 36x^4$

f)  $2x^2 - 3x - 20$

**Additional Supports & Practice**

<http://www.purplemath.com/modules/factquad.htm>

<http://www.youtube.com/watch?v=qy0uSglDxww>

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**Topic 8**

**Quadratics**

a. Solve:  $y^2 - 25 = 0$

b. Solve:  $2x^2 = 20$

c. Solve:  $x(x - 4) = 0$

d. Solve:  $-3x^2 + 5x^2 = 0$

e. Solve:  $3x^2 - 21x + 36 = 0$

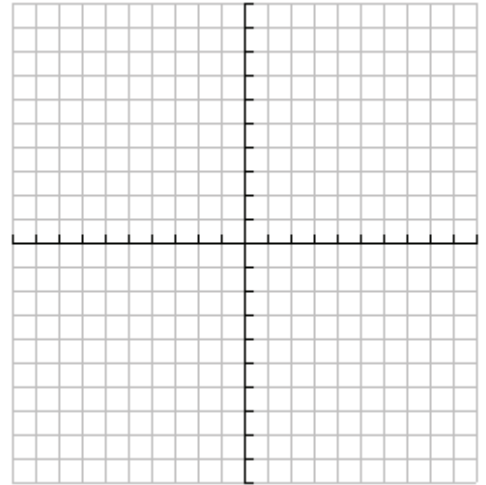
f. Solve using the quadratic formula:  $5x^2 - 11x + 3$

g. A 26-foot ladder is leaning against a building. The bottom of the ladder is 10 feet from the base of the building. How high is the top of the ladder from the ground?



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h. Graph  $y = x^2$



i. Marty leaves his house and walks 2 miles due west. He stops at the library and then walks 3 miles due north to his friends house. How far is Marty from his house? Round your answer to the nearest tenth of a mile.

j. A number squared is equal to 12 times the number minus 36. Find the number.

k. The area of a rectangle is  $108\text{cm}^2$ . The length is  $3\text{cm}$  greater than the width. Find the length and width of the rectangle.

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**Additional Support & Practice**

<http://www.brightstorm.com/math/algebra/quadratic-equations-and-functions/solving-quadratic-equations-by-factoring-problem-4/>

<http://www.brightstorm.com/math/algebra/quadratic-equations-and-functions/the-quadratic-formula/>

<http://www.purplemath.com/modules/quadprob3.htm>

*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?