

WOODSTREAM CHRISTIAN ACADEMY



SCHOOL OF LOGIC

8TH GRADE SUMMER PACKET

NAME _____

This packet must be completed in its entirety and submitted to your **Pre-Algebra/Algebra 1** teacher on 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 required for your upcoming math class.
- 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.
- **No calculators** will be allowed while completing the quiz. To be better prepared for the quiz, you should be completing the problems in the packet without a calculator.

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

1 - Numbers and Operations

Web resources:

Addition of Integers –

- <http://www.mathgoodies.com/lessons/vol5/addition.html>
- <http://www.youtube.com/watch?v=204uFu0DRWE>

Subtraction of Integers –

- <http://www.mathgoodies.com/lessons/vol5/subtraction.html>

Multiplication and division of integers

- http://www.mgccc.edu/learning_lab/math/multdiv.html

Absolute value –

- <http://www.purplemath.com/modules/absolute.htm>

Square root - $\sqrt{\#}$

- <https://www.khanacademy.org/math/arithmetric/exponents-radicals/radical-radicals/v/understanding-square-roots>

Remember to do the following without a calculator. You will not be allowed to use a calculator for similar problems on the Summer Math packet Quiz.

1) For each problem, add the two integers and show or describe how you got your answer:

a) $-21 + 3$

a) _____

b) $17 + (-20)$

b) _____

c) $-12 + (-5)$

c) _____

1 cont. *Remember to do the following without a calculator.

2) Complete the following subtraction problems and show or describe how you got your answer:

a) $22 - (-15)$ a) _____

b) $-15 - 7$ b) _____

c) $12 - 18$ c) _____

3) Complete the following problems:

a) Which of the following equal -39 ? _____
(circle *all* correct answers; there may be more than one)

i. $-13 \cdot 3$

ii. $-13 \cdot (-3)$

iii. $13 \cdot (-3)$

iv. $-1 \cdot 39$

b) $\frac{24}{-3} =$ _____

4) Which expression has the larger value, $|-9|$, $|3|$, or $|2 - 5|$? How do you know?

5) Which expression has the larger value, $\sqrt{36}$ or 2^3 ? How do you know?

2 – Fractions/Decimals/Percents

Web resources:

Vocabulary - information about words underlined in problems below can be found at the sites below.

- <http://www.mathwords.com/>
- <http://www.math.com/school/glossary/glossindex.html>

Fractions and mixed numbers –

- <https://www.khanacademy.org/math/arithmetric/fractions>

Percent problems - http://www.mathgoodies.com/lessons/percent/sale_price.html

Equivalent fractions, decimals, percents –

- <http://www.mathsisfun.com/decimal-fraction-percentage.html>
(scroll down to “conversions”)

Remember to do the following problems without a calculator. You will not be allowed to use a calculator for similar problems on the Summer Math Packet Quiz.

1) Divide. Show your work. $-\frac{5}{6} \div \frac{15}{-6} =$ _____

2) Write -2.75 as a ratio of two integers. Show your work. _____

3) Write the reciprocal of $-\frac{5}{9}$ _____

4) Multiply. Show your work. $\frac{15}{7} \cdot \frac{4}{5}$ _____

**Woodstream Christian Academy
School of Logic**

2 cont.

5) Subtract. Show your work. $\frac{3}{4} - \frac{1}{2}$ _____

6) A jacket originally sold for \$45. This week it is on sale for 20% off. What is the discount and what is the sale price? Show your work.

Discount _____

Sale price _____

7) A student answered 44 questions correctly on a test with 55 questions. What percent of the test was answered correctly? Show your work.

Percent correct _____

8) Write $\frac{12}{16}$ as a fraction in simplest form.

Then write the equivalent decimal and percent. Show your work.

Simplest form _____ Decimal _____ Percent _____

2 cont.

9) Add. Show your work. $2\frac{1}{3} + \frac{7}{2}$ _____

10) Add. Show your work. $5.01 + 0.431 + 40$ _____

3 - Ratio and proportion

Web resources

<http://www.khanacademy.org/math/arithmetic/rates-and-ratios/ratios-and-proportions>

Complete the following problems. SHOW ALL WORK ON THIS PAGE

1. Reduce the fraction to lowest terms: $\frac{12}{15}$

2. A. Write the ratio of girls to boys in a class with 12 girls and 15 boys.
Reduce the ratio to lowest terms.

B. Use the information from Part A to estimate the number of girls in the school if there are a total of 1350 students in the whole school, and the class in Part A is representative of all classes in the school.

3. A. The equation below is called a _____ because it shows that two ratios are equal.

B. Solve for d : $\frac{16}{d} = \frac{2}{3}$

**Woodstream Christian Academy
School of Logic**

3 cont.

4. Solve for g : $\frac{12}{27} = \frac{g}{1350}$

5. A 3.5 pound package of hamburger costs \$11.20.

A. What is the cost of one pound of hamburger?

B. If you did not write a proportion to answer question #5A above, write a proportion that you could have used to answer question #5A.

6. The scale on a map indicates 1 inch = 150 miles. The distance from Philadelphia to Miami is 1200 miles. On the map, how far apart are Philadelphia and Miami?

7. A recipe calls for 3 cups of sugar for every 4 pounds of fruit. How many cups of sugar are required for 10 pounds of fruit?

4 - The "Language" of Algebra

Web resources:

- <http://www.mathgoodies.com/lessons/vol7/equations.html>
- <http://www.purplemath.com/modules/translat2.htm>

Complete the problems below:

1) *The product of a number n and 6 is 42.* Which of the following equations represents this statement? Circle your answer.

- A. $n + 6 = 42$ B. $6n = 42$ C. $\frac{n}{6} = 42$ D. $n - 6 = 42$

2) Write an algebraic expression for *nine more than three times a number x*

3) Let t be the time now. Write an expression for *the time 2 hours ago.*

4) Write an algebraic expression for *the sum of r and s .*

5) Write an algebraic expression for the following: *Five times the sum of p and q .*

6) Write an equation to represent the following:

The quotient of two numbers, a and b , is 8.

4 cont.

7) Let d represent the amount of money Shea has. Use d to write an algebraic expression for each of the following:

- a. Shea's sister's money if she has *twice as much money as Shea*.

- b. Shea's friend's money if he has *\$9 less than Shea*.

- c. Shea's brother's money if he has *half as much as Shea*.

8) If " x " is the number of CDs packed in each case at the warehouse, write an expression to represent the *number of CDs in 300 cases*.

5 - Algebraic Expressions and Equations

Web resources

Evaluate expressions

<http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/variable-and-expressions/v/variables-and-expressions-1>

Solve equations

<http://www.purplemath.com/modules/solvein3.htm>

Order of operations

http://www.khanacademy.org/math/arithmetic/multiplication-division/order_of_operations

Combine like terms

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

Complete the following problems. SHOW ALL WORK ON THIS PAGE

1. If $x = 1$ and $y = 7$, evaluate $\frac{x+y}{4}$
2. If $x = 3$, which is larger, x^2 or $5x$? *How do you know?*
3. If $x = -3$, which is larger, x^2 or $5x$? *How do you know?*

5 cont.

4. Solve for x. Check your solution.

A. $9x = 27$

B. $-3x + 4 = 22$

5. Simplify. Be sure to use the correct order of operations.

A. $4 + 5 \cdot 4 - 15 \div 3$

B. $6 \cdot 2t - 3t$

C. $6(2t - 3t)$

Why is problem 5C different from problem 5B?

D. $-(3d - 5) + 3d$

E. $(3x^2 - 6x + 10) + (5x^2 + 6x - 2)$

6 – Coordinate Plane/ Tables & Graphs

Web resources:

Coordinate plane

- <http://www.mathsisfun.com/data/cartesian-coordinates.html>
- <http://www.mathplanet.com/education/algebra-1/visualizing-linear-functions/the-coordinate-plane>

Tables and graphs

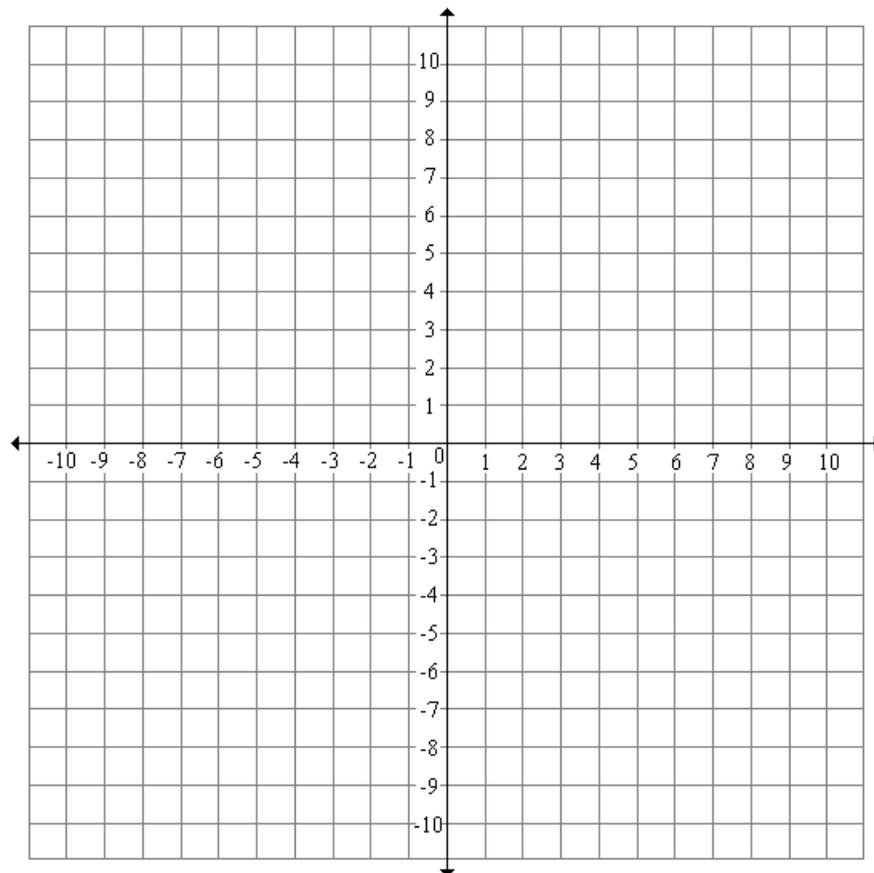
- <http://www.virtualnerd.com/algebra-1/relations-functions/graphing-linear-equations/graphs-examples/linear-equation-graphing-method>

Scatterplots

- <http://www.mathgoodies.com/lessons/graphs/line.html>
- <http://www.purplemath.com/modules/scattreg.htm>

1) Locate the following points on the coordinate plane. Label each point with the correct letter.

A (- 4, 3) B (3, 6) C (0, -5) D (4, -3) E (-1, 0)

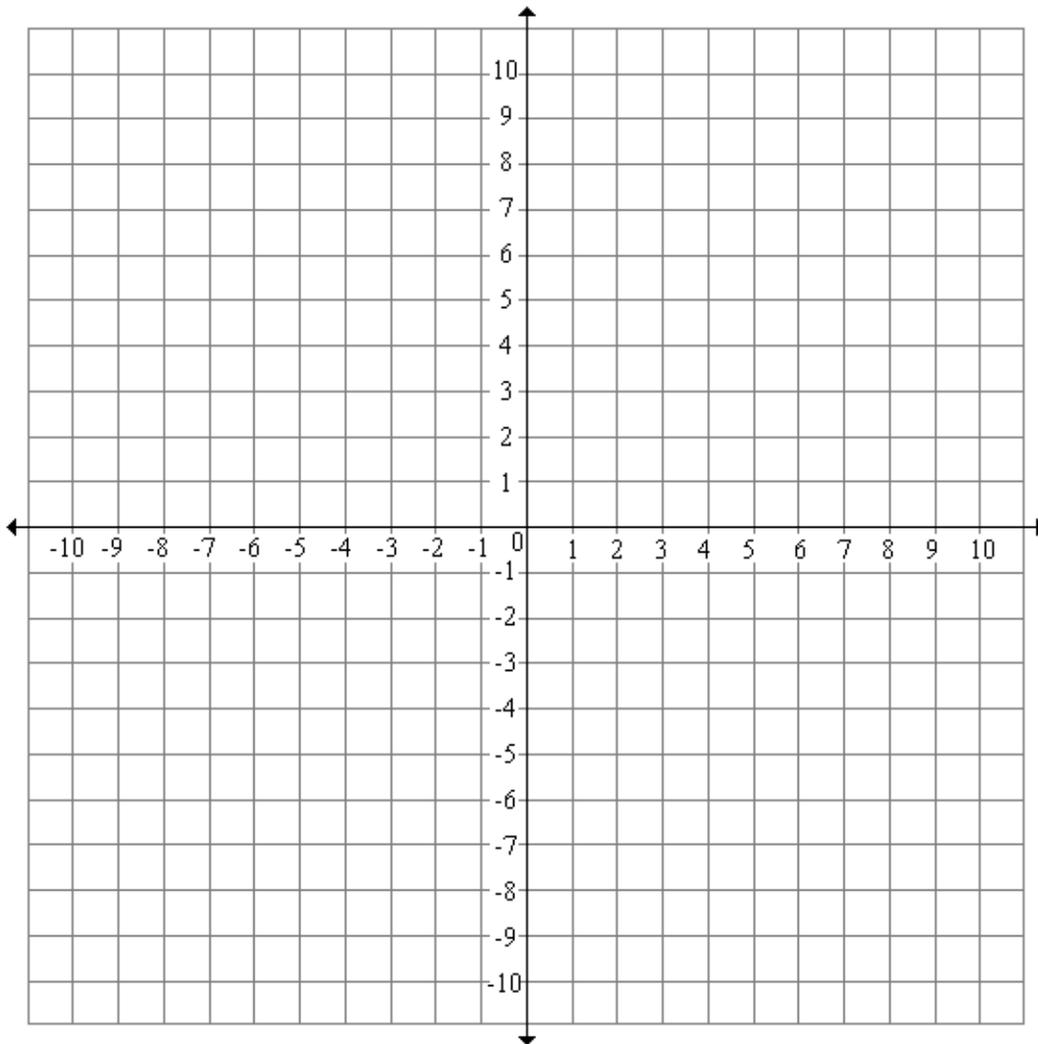


6 cont.

2) The table below shows the growth of a plant that was planted as a seed, 4 inches under the surface of the ground.

x (# days after planted)	0	1	2	3	4	5	6
Y (height of plant in inches)	-4	-3.5	-3	-2.5			

- Complete the table above.
- If the pattern of growth continues, when will the plant be 1 inch tall?
- Graph the information from the table as a line, on the coordinate plane below.



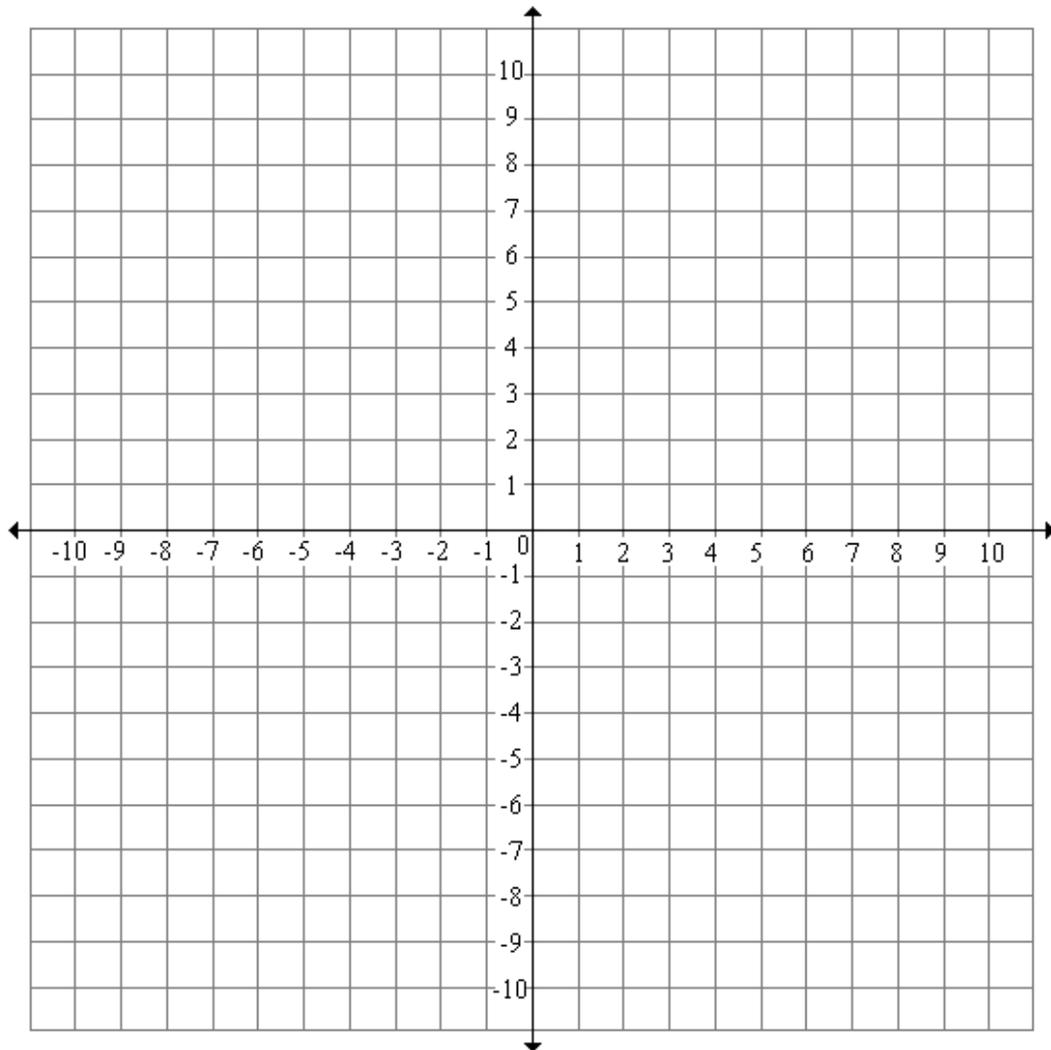
6 cont.

3) Use the equation $y = 3x - 4$ to do the following:

a. Complete this table of values, choosing five different x values.

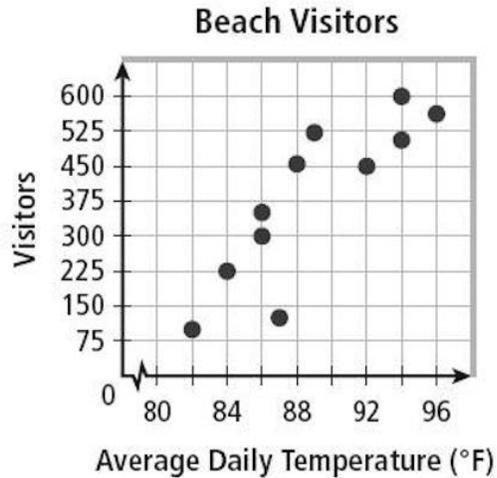
x	y

b. Graph the line $y = 3x - 4$ on the coordinate plane below.



6 cont.

4) Which statement describes the relationship shown by the data in the scatterplot below? Circle the letter of the correct response.



- A. As the average daily temperature decreases, the number of visitors increases.
- B. The number of visitors decreases as the average daily temperature increases.
- C. The number of visitors increases as the average daily temperature increases.
- D. There is no relationship between the average daily temperature and the number of visitors.

7 cont.

4. A square has an area of 64 square feet.

A. What is the length of each side of the square?

B. What is the perimeter of the square?

5. The length of a rectangle is 6 greater than the width.

A. Write the algebraic expression for length of the rectangle, using w : _____

B. If the perimeter of the rectangle is 52, write the equation for perimeter, using w :

$$52 = \underline{\hspace{10em}}$$

6. Imagine you are building a rectangular playground in a township park and it needs to be 1000 square feet in area. You have the job of deciding the length and width of the playground and ordering the fence to enclose the playground.

A. Choose the length and the width. There is more than one correct answer, but the playground must be a rectangle and the area must be 1000 square feet.

Length = _____

Width = _____

Show your work to verify the area is 1000 square feet.

B. What is the perimeter of the rectangle you chose?
(In other words, how much fence do you need to order?)

8 - Data and probability

Web resources

Median and mean (#1 below)

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

Box and whisker plots (#2 below)

<https://www.khanacademy.org/math/probability/descriptive-statistics/Box-and-whisker-plots>

Scatterplots (#3 below)

<http://www.mathgoodies.com/lessons/graphs/line.html>

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

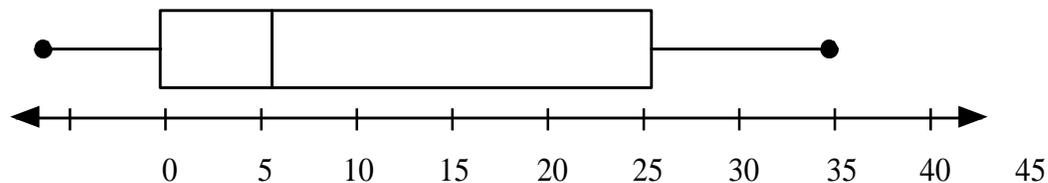
Probability (#4-6 below)

https://www.khanacademy.org/math/trigonometry/prob_comb/basic_prob_precalc/v/basic-probability

Complete the following problems. SHOW ALL WORK ON THIS PAGE

1. The students in a summer school math class took a 10 point quiz on Friday and received scores of 7, 8, 8, 9, 9, 9, 6, 5, 4, and 9.
 - A. What is the median of the scores?
 - B. What is the mean score?

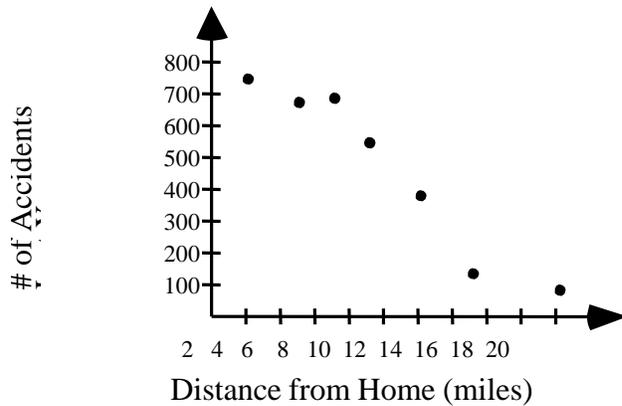
2. The box-and whisker plot below represents the number of home runs hit by 20 major league baseball players.



- A. What is the median number of home runs hit by the 20 players?
- B. Approximately how many of the players hit more than 25 home runs?

8 cont.

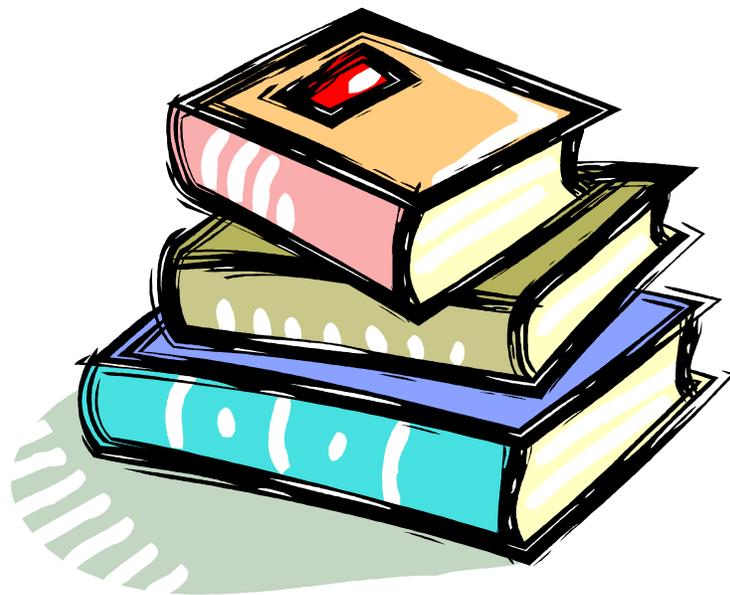
3. The graph below describes the relationship between the distance from home and the number of accidents.



- A. As the distance from home increases, the number of accidents _____.
- B. Approximately _____ accidents occurred more than 20 miles from home.
4. A. If you flip a coin once, what is the probability of the coin landing on “heads”?
- B. If you flip a coin 3 times, what is the probability of the coin landing on “heads” all 3 times?
5. If you roll a 6-sided die with the numbers 1, 2, 3, 4, 5, and 6 on it, what is the probability of the die landing on an odd number?
6. Name an event which has a probability of “one.”

Woodstream Christian Academy

Summer Reading



School of Logic

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?