



GREEN VALE  
S C H O O L

# 2024 Summer Work

Entering 8<sup>th</sup> Grade

Reading: Pages 2-6

Regular Math: Pages 7-13

Honors Math: 14-19

Honors Extended Math: 20-25

Name: \_\_\_\_\_



## 8th Grade Reading Overview

1. Selection from 8th Grade List - Written Report Due August 1 Please select one book from the **8th Grade Book List** and complete the **writing assignment**. Submit by August 1 either via email to [Tyler Wood](#) or postal mail to “8th Grade English” at the main GVS address.

2. Book of Your Choice

Read any book of your choosing and come to school prepared to discuss and write about it.

3. Required Summer Reading book

### ***Of Mice and Men* by John Steinbeck**

With a direct connection to the 8th Grade history curriculum, this 1937 novella tells the story of two displaced migrant ranch workers who move from place to place in search of new job opportunities during the Great Depression. We suggest that students read this book last so that it's fresh for class discussion and assignments upon return.

Please read with pen in hand, take notes, and highlight parts that strike you.

## 8th Grade Book Selection List

### Nonfiction

*The Diary of Anne Frank*, Anne Frank

Writings from the famous diary kept by a young girl in hiding for two years during the Nazi occupation of the Netherlands

*Most Dangerous*, Steve Sheinkin

The multi-award-winning nonfiction account of an ordinary man who had access to a top-secret government report known as the Pentagon Papers, which, if released, could expose years of government lies. What should he do? What does he do?

### Fiction

*The House on Mango Street*, Sandra Cisneros

A 1984 coming-of-age/bildungsroman novel written from the perspective of a teenage Latina who struggles with her life in a Chicano and Puerto Rican neighborhood of Chicago.

*The Outsiders*, S.E. Hinton

This international bestseller and inspiration for a beloved movie is a heroic story of friendship and belonging. Two rival groups, the Greasers and the Socs, are divided by their socioeconomic status.

*The Kite Runner*, Khaled Hosseini

The heartbreaking story of an unlikely friendship between a wealthy boy and the son of a servant, *The Kite Runner* transports readers to Afghanistan at a tense historical moment of change and destruction.

*A Thousand Splendid Suns*, Khaled Hosseini

With heart-wrenching power and suspense, Hosseini shows how a woman's love for her family can move her to shocking and heroic acts of self-sacrifice, and that in the end it is love, or even the memory of love, that is often the key to survival.

*Things Fall Apart*, Chinua Achebe

One of the first novels by an African author to garner worldwide acclaim. Achebe chronicles pre-colonial life in Nigeria and the arrival of the Europeans during the late nineteenth century. It is "A true classic of world literature," according to Barack Obama.

*Lord of the Flies*, William Golding

A 1954 novel by Nobel Prize–winning British author William Golding focuses on a group of boys stranded on an uninhabited island and their disastrous attempt to govern themselves

## **Historical Fiction**

*The Secret Life of Bees*, Sue Monk Kidd

Multi-million bestselling novel about a young girl's journey towards healing and the transforming power of love

*The Help*, Kathryn Stockett

A 2009 novel about African Americans working in white households in Jackson, Mississippi during the early 1960s

*All the Light We Cannot See*, Anthony Doerr

A stunningly beautiful instant New York Times bestseller about a blind French girl and a German boy whose paths collide in occupied France as both try to survive the devastation of World War II.

## **Science Fiction/Fantasy**

*1984*, George Orwell

The classic dystopian novel published in 1949, whose themes center on the risks of government overreach, totalitarianism and repression of all persons and behaviors within society.

*Alice in Wonderland*, Lewis Carroll

One of the English language's most popular and frequently quoted books, this tale is intended for young readers but enjoyed equally by older ones. The story is a satire with an imaginative plot and brilliant use of nonsense. It also transformed children's literature.

*The Hitchhiker's Guide to the Galaxy*, Douglas Adams

An international multi-media phenomenon, this series of novels has been translated into more than 30 languages. The plot follows the adventures of a hapless Englishman following the destruction of the Earth by a race of unpleasant and bureaucratic aliens.

## 8th Grade Summer Writing Assignment

Name Section \_\_\_\_\_

Date \_\_\_\_\_

Title \_\_\_\_\_

Author \_\_\_\_\_

Publisher \_\_\_\_\_

Date of publication \_\_\_\_\_

Number of pages \_\_\_\_\_

Genre \_\_\_\_\_

### **INSTRUCTIONS:**

On loose-leaf or on the computer, please answer the following by using complete sentences. Use the Glossary at the end of the questions and the “Elements of Good Writing” list to help explain terms you may not understand.

### **Attach this sheet to your book review.**

1. How does setting play an important role in the story’s development?
2. Choose two quotations/citations/lines from the book and explain in detail the significance they have to the story, or why they have special meaning to you.
3. Discuss the central conflict or problem in the book. Is it an internal or external conflict? How is the conflict resolved? If not resolved, why did the author make this choice?
4. Compare and contrast two characters in the book. Support your analysis with details and examples. You should include at least two ways the characters are similar and two ways they are different.
5. What major theme does the book address? Discuss with at least two examples.
6. What is the author’s purpose in writing this story? What did the author want you to experience, feel, or understand through reading this book?
7. Choose one example of figurative language (personification, hyperbole, metaphor, or simile) and analyze the deeper meaning. (See Glossary)
8. On a scale of 1 to 10, how would you rate this book? Explain your answer by giving examples from the book.

## **Glossary:**

**Setting:** This is the time, location, and circumstances in which the story takes place. Broadly speaking, the setting provides the main backdrop for the story. This can include atmosphere, the tone and feeling of the story.

**Climax:** This is the highest point of interest or drama in the story. The suspense is at its peak, but the outcome is still unclear.

**Theme:** Theme is defined as a main idea or an underlying meaning of a literary work that may be stated directly or indirectly.

**Point of View** - this is how the work's narrator tells the story. Literary narration can occur from the first-person or third-person point of view. In a novel, the first person is shown when the narrator says, "I saw, We did," etc. A Narrator is writing in the third person when the narrator says, "that happened, the king died", etc.

## **Elements of Good Writing:**

1. **Vivid imagery** - use of adjectives and description to paint a picture in the reader's mind

2. **Characterization** - how the writer creates realistic or interesting characters by giving them specific traits or characteristics.

3. **Conflict** - essential to the plot; the conflict can be any form of struggle the main character faces. Is the conflict or problem that the characters deal within the story interesting? How do the characters deal with the main conflict?

## **4. Figurative language**

-Personification- giving human qualities to inanimate objects.

-Hyperbole- a deliberate exaggeration to make a point

-Metaphor- a comparison between two unlike things that suggests a similarity between the two items that doesn't use like or as.

-Simile- a comparison between two unlike things that suggests a similarity between the two items that DOES use like or as.



## Entering 8th Grade Summer Math

- 1) If 8 less than  $k$  is 6 than  $m$ , then  $k$  is \_\_\_\_\_ more than  $m$       1) \_\_\_\_\_
- 2) Find the smallest positive two-digit whole number that leaves a remainder of 7 when divided by both 9 and 10.      2) \_\_\_\_\_
- 3) Using the 4 digits 1, 2, 3, 4 to replace the 4 letters shown below, find the difference between the greatest possible product and the least possible product.     $A B \times C D$       3) \_\_\_\_\_
- 4) Six people can be seated comfortably in an area 6' by 8'. How many people could be seated comfortably in a room 12' by 18'?      4) \_\_\_\_\_
- 5) Artie placed a "5" at the right hand end (unit's place) of a 3-digit number. That increased the value of the number by 3074. What was the original 3-digit number?      5) \_\_\_\_\_
- 6) A jar of peanuts is  $\frac{8}{9}$  full. Alice gave 25 peanuts from the jar to each of 9 people. The jar is now  $\frac{1}{3}$  full. The full jar of peanuts holds \_\_\_\_\_ peanuts.      6) \_\_\_\_\_
- 7) In the multiplication problem at the right, find the digit  $B$  represents.      7) \_\_\_\_\_  
 $3B3 \times 15 = 5,745$

8) Josh left his house in the morning with some money. He spent one-half his money on lunch, one-third on a snack and one-tenth on a magazine. When he got home he still had 60¢ left. How much did Josh spend for lunch?

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

9) A quart bottle has all three of its dimensions doubled. The new bottle will hold \_\_\_\_\_. (4qts = 1 gal)

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

a.  $1\frac{1}{2}$  quarts                      b. 2 quarts                      c. 3 quarts

d. 1 gallon                              e. 2 gallons

10) Mr. Barnes can drive his car to work, which takes the same time going to work as returning from work. He can also take a bus to work which takes the same time going as returning. One day he took the bus to work and returned home by car since his wife met him at work. The total traveling time that day was 75minutes. The total traveling time both ways by bus was 18 minutes more than both ways by car. The traveling time both ways by car is \_\_\_ minutes.

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

11) Jasmine is numbering pages in her scrapbook (1, 2, 3, - - - 10, 11, ---). The first 9 pages require only 1 digit per page. Then the pages require 2 digits each, then 3 digits each, etc. What is the 1020<sup>th</sup> digit Jasmine wrote while numbering her scrapbook?

11) \_\_\_\_\_

12) The sale price at a department store was 20% off the list price. The closeout price was 25% off the sale price. Mrs. Jennings bought a dress at the closeout price of \$75. What was the list price of the dress?

12) \_\_\_\_\_

13) If  $4x A > 20$  and  $5x A < 35$ , then A represents what whole number?

13) \_\_\_\_\_



14) Anthony and Claudia took turns babysitting for Mrs. Castro. Anthony babysat for three hours and thirty minutes. Claudia intended to babysit for the same length of time but Mrs. Castro came home one hour and twenty minutes early. She gave Claudia \$30.60 and told her to divide the money with Anthony so that each would get paid at the same hourly rate. How much should Anthony receive?

14) \_\_\_\_\_

15) The surface area of a cube is 54 sq in. The ratio of the number of sq. in. in the surface area to the number of cubic inches in the volume of the cube is \_\_\_\_\_.

15) \_\_\_\_\_

- a. 2:1            b. 1:2            c. 3:1  
d. 1:3            e. 3:2

16) Mrs. Rodriguez bought 4 new tires for her car and paid \$360 for them. She was told the tires would not have to be replaced for 80,000 miles. If that turns out to be true, the cost of the 4 tires would be \_\_\_\_\_ ¢ for every 100 miles.

16) \_\_\_\_\_

17)  $a \Delta b$  means "Take the positive difference between the numbers and then triple the result." For example:

17) \_\_\_\_\_

$5 \Delta 2 = 5 - 2 = 3$ .  $3 \times 3 = 9$  Which of the following must be added to  $9 \Delta 3$  to make it equal to  $13 \Delta 2$ ?

- a)  $5 \Delta 1$    b)  $12 \Delta 7$    c)  $11 \Delta 4$    d)  $8 \Delta 2$    e)  $10 \Delta 2$

18) Wally can ride his dirt bike 4 miles in 20 minutes. He is traveling at \_\_\_\_\_ m.p.h

18) \_\_\_\_\_

19) A piece of wire is bent to form a square. It encloses an area of 225 sq in. If the same wire was bent to form an equilateral triangle, each side of the triangle would be \_\_\_\_\_ in.

19) \_\_\_\_\_

20) The star batter for the Lakewood Blue Claws had 2 hits in every 5 at bats against left-handed pitchers. Against right-handed pitchers he only had 3 hits in every 11 at bats. He batted 345 times against left-handed pitchers and 429 times against right-handed pitchers. How many hits did he have all together?

20) \_\_\_\_\_

21) If a number machine is fed an odd number, it multiplies it by 3 and then adds 1. If it is fed an even number, it divides it by 4. After the number 21 is fed into the machine, each result will be fed back into the machine. Before long the only two numbers produced by the machine are \_\_\_\_ and \_\_\_\_.

21) \_\_\_\_\_

22) In a 365 day calendar year, there are \_\_\_\_ odd-numbered days and \_\_\_ even numbered days.

22) \_\_\_\_\_

23) A cable car can hold at most 42 adults, or 30 adults and 18 children. If only children are present, what is the maximum number of children allowed in the cable car?

23) \_\_\_\_\_

24) Consecutive integers are numbers that follow one another in order. For example: 24, 25, 26, 27 are consecutive integers. The sum of any three consecutive integers will always be divisible by what one-digit number, other than one?

24) \_\_\_\_\_

25) The sum of the prime factors of 60 is 12 ( $2 + 2 + 3 + 3 = 12$ ). Find the sum of the prime factors of 630.

25) \_\_\_\_\_

26) A leaky faucet drips at the rate of 1 drip every 3 second. Assume 200 drips fills an 8-oz cup. One gallon is sixteen 8-oz cups. How many gallons of water will drip in a 24-hour period?

26) \_\_\_\_\_

27) A set of three positive numbers has a sum of 15 and a product of 84. If the smallest of the three numbers is 2, what is the largest?

27) \_\_\_\_\_

28) Linda collected \$.60 from each of the 25 people in her office (including herself) to pay for a cake. She realized she only had  $\frac{3}{4}$  of her money needed to pay for the cake. How much more money must she collect from each person to pay for the cake?

28) \_\_\_\_\_

29) Maria spent \$3 for plums, some at 30¢ a dozen and some at 40 ¢ a dozen. She sold all the plums at 3¢ each and made a profit of 24 ¢. How many dozen plums did she buy a 40¢ a dozen?

29) \_\_\_\_\_

30) The Rory Office Building has 300 offices. Each office has a window or an air conditioning unit or both. If 225 offices have a window and 200 offices have an air conditioning unit, how many offices have both?

30) \_\_\_\_\_

31) Consecutive numbers are numbers that follow each another in order. For example, 24, 25, 26, 27 are consecutive numbers. The sum of any five consecutive numbers will always be divisible by what one-digit number other than 1?

31) \_\_\_\_\_

32) Isabella bought eight CD's. The 4 less expensive CD's were all the same price. The other 4 were also all the same price, each costing \$1 more than each of the less expensive CD's. She gave the clerk \$150 and received \$10.80 change. The price for one of the less expensive CD's was \_\_\_\_\_.

32) \_\_\_\_\_

33) If  $x$  is 25% of 60 and  $y$  is 20% of 60, express  $x + y$  in simplest form.

33) \_\_\_\_\_

34) Mike counted all the ears, eyes, paws and tails on all the tigers in the zoo. The total he got is the same as the number of all the lions' paws in the zoo. The total number of lions and tigers in the zoo must be a multiple of \_\_\_\_.

- a. 9                      b. 10                      c. 11  
d. 12                      e. 13

34)\_\_\_\_\_

35) The numbers 9 and 10 are the two smallest consecutive whole numbers such that the larger (10) is divisible by 5 and the smaller (9) is divisible by 3. Find the two smallest consecutive whole numbers such that the larger is divisible by 7 and the smaller by 5. (Consecutive numbers are numbers that follow one another).

35)\_\_\_\_\_

36) From its lowest point, a horse on a carousel rises  $1\frac{1}{2}$  ft. and then descends again exactly 8 times for each time the carousel revolves once. Jerry gets on a horse at its lowest point just when the carousel starts. When the carousel is  $\frac{2}{3}$  the way around, how high, in feet, is Jerry from his lowest point?

36)\_\_\_\_\_

37) Travis is traveling  $\frac{1}{5}$  mile per minute on his bicycle. He is traveling \_\_\_\_ mph.

37)\_\_\_\_\_

38) Kerry has a penny collection. She gives  $\frac{1}{4}$  of her collection to her cousin. She gives  $\frac{2}{3}$  of what was left to her sister. Then she gives  $\frac{3}{4}$  of what was left to her brother. What fractional part of her penny collection does Kerry still have?

38)\_\_\_\_\_

39) Tony was still 14 years old on Wednesday, September 9. Exactly three weeks ago he said his birthday was in 40 days. On what day of the week will Tony be 16 years old? (No leap year is involved)

39) \_\_\_\_\_

40) The local pizza parlor has 15 choices of toppings for a pizza. What is the maximum number of pizzas you could order with a different combination of two toppings each?

40) \_\_\_\_\_



## Entering 8th Grade Honors Summer Math

1) In the diagram at the right, the distance from P to S is 56". The distance from P to Q is equal to the distance from R to S. The distance from Q to R is one-third the distance from P to Q. The distance from P to Q is \_\_\_\_\_.



2) Kerry has a penny collection. She gives  $\frac{1}{4}$  of her collection to her cousin. She gives  $\frac{2}{3}$  of what was left to her sister. Then she gives  $\frac{3}{4}$  of what was left to her brother. What fractional part of her penny collection does Kerry still have? 2) \_\_\_\_\_

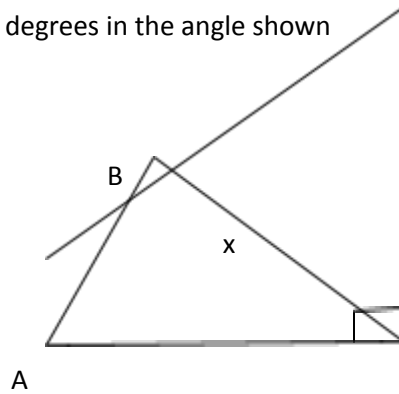
3) Tony was still 14 years old on Wednesday, September 9. Exactly three weeks ago he said his birthday was in 40 days. On what day of the week will Tony be 16 years old? (No leap year is involved) 3) \_\_\_\_\_

4) The local pizza parlor has 15 choices of toppings for a pizza. What is the maximum number of pizzas you could order with a different combination of two toppings each? 4) \_\_\_\_\_

5) How many shares of stock must be purchased at 41  $\frac{1}{6}$  dollars per share and sold at 41  $\frac{2}{3}$  dollars per share in order to make a profit of \$100? 5) \_\_\_\_\_

6)  $\triangle ABC$  is an equilateral triangle and  $\triangle ACD$  is an isosceles right triangle with the right angle at C, as shown. The number of degrees in the angle shown as  $x =$  \_\_\_\_\_.

D



C

7) If you start with 3 and count by 4's you obtain the following sequence: 3, 7, 11, 15, ..... What is the 100<sup>th</sup> number in the sequence? 7) \_\_\_\_\_

8) Assumer 60 mph = 88 ft/sec. A plane flew 572 yards in 3 second. What is the speed of the plane in miles per hour? 8) \_\_\_\_\_

9) The sum of 5 positive integers is 256. The 4 smaller are consecutive integers. The 2 larger are consecutive even integers. The largest of the 5 integers is \_\_\_\_\_. (Consecutive integers are integers that follow in order such as 3, 4, 5) 9) \_\_\_\_\_

10) In the Fibonacci sequence 1, 1, 2, 3, 5, 8, 13, 21, .... Each term in the sequence from the 3<sup>rd</sup> term on is obtained by calculating the sum of the 2 preceding terms. The 6<sup>th</sup> term, 8, was obtained by adding 3 and 5. In another sequence, where the terms are obtained the same way, the 8<sup>th</sup> term is 118 and the 9<sup>th</sup> term is 191. What is the 5<sup>th</sup> term in that sequence? 10) \_\_\_\_\_

11) How many numbers between 2999 and 4999 have the property that the sum of the digits is less than 6? 11) \_\_\_\_\_

12) Chuck, Jorge and Luis all like to lift weights. Chuck can lift 250 lbs. Jorge can lift 80% of what Chuck can lift. Luis can lift 80% of what Jorge can lift. Jorge can lift \_\_\_\_ more pounds than Luis. 12) \_\_\_\_\_

13) Horace can mow a lawn in 24 minutes. Jake only takes 16 minutes to mow the same lawn. If they work together for 8 minutes, what fractional part of the lawn is mowed? 13) \_\_\_\_\_

14) Tony paid the same price for a number of computer games totaling \$138.25. Willy bought the same number of computer games for \$117.25. Willy paid \$3 less for each game than Tony did. How much did Tony pay for each game? 14) \_\_\_\_\_

15) Mrs. Elery was born in 1974. When her daughter Melissa was born, Mrs. Elery was 28 years old. In what year will Melissa be 15 years old? 15) \_\_\_\_\_

16) How many numbers between 1 and 50 are divisible by either 3 or 4 but not both? 16) \_\_\_\_\_

17) A golf store sells a golf ball that has a shuttle attached to it that cuts down the distance the ball would go without it. This is for practicing. The store says that the shuttle reduces the distance that the ball would go by 80%. If the ball with the shuttle is hit by a golf club and goes 50 yards, then how far would it have gone without the shuttle? 17) \_\_\_\_\_

18) Damon gave Shaquan a 20-yard head-start in a race. Damon can run 3 yards a second while Shaquan can run  $2\frac{1}{2}$  yards a second. Damon crosses the finish line 2 seconds ahead of Shaquan. How many yards did Damon run? 18) \_\_\_\_\_

19) Which of the following is not the product of two prime numbers? 19) \_\_\_\_\_

- a. 55
- b. 39
- c. 51
- d. 63
- e. 65



20) Given the two numbers 10 and 16. Find the two numbers that are twice as far from 16 as they are from 10. 20) \_\_\_\_\_

21) The average of 5 numbers is 12. If the average of 3 of these numbers is 6, what is the average of the other 2 numbers? 21) \_\_\_\_\_

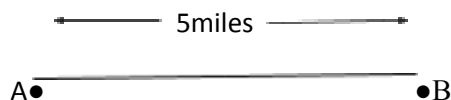
22) On a holiday tree four strands of colored bulbs blink at different speeds. Strand A blinks every 12 seconds, strand B every 15 seconds, strand C every 20 seconds and strand D every 25 seconds. If all four strands blink together at 1:30pm, the next time they will all blink together again is at \_\_\_p.m. 22) \_\_\_\_\_

23) Mr. Quinn started his trip at 9am. with the car's odometer reading 36863 which is a palindrome (reads the same left to right as right to left). He averaged 60mph. for the trip and when he arrived at his destination the car's odometer read the next possible palindrome with all odd digits. At what time that day did Mr. Quinn arrive at his destination? 23) \_\_\_\_\_

24) How many multiples of 7 are there between 15 and 95? 24) \_\_\_\_\_

25) At the ABC Department Store a \$210 coat is on sale for  $\frac{1}{3}$  off the price. At the DEF Department Store the same coat had a sticker saying "take 25% off the sale price of \$160. The coat at the DEF Store is \$\_\_\_ cheaper than at the ABC Store. 25) \_\_\_\_\_

26) Tyler and Amanda both start walking at 12 noon. Tyler walks from A to B, back to A and back and forth at a constant speed of 3mph. Amanda walks from B to A, back to B and back and forth at a constant speed of 2 mph. They pass each other for the first time at 1pm, 3 miles from A and 2 miles from B. At what time will they be together at point B for the first time? 26) \_\_\_\_\_



27) Find the smallest 5-digit number that is divisible by 2, 3, 4, 5, and 6. 27) \_\_\_\_\_

28) It takes 3 men 8 hours to build 10 sheds. If would take 9 men \_\_\_\_\_ hours to build 45 sheds. 28) \_\_\_\_\_

29) There are \_\_\_ two-digit numbers where the number is increased by 18 when the digits are reversed. 29) \_\_\_\_\_

30)  $a^2 + b^2 + c^2 = 49$ , where a, b, and c are distinct (different), positive whole numbers. If  $a < b < c$ , and  $a = 2$ , find c. 30) \_\_\_\_\_

31) There are 4 men in a car. Find the sum of the ages of the 4 men if their ages in all possible pairs are given as 96, 79, 84, 95, 100, 83. 31) \_\_\_\_\_

32) What is the remainder when  $(631)^{399}$  is divided by 10? 32) \_\_\_\_\_

33) If July 24 is a Sunday, then September 24 of the same year will be a \_\_\_\_\_. (Both July and August have 31 days). 33) \_\_\_\_\_

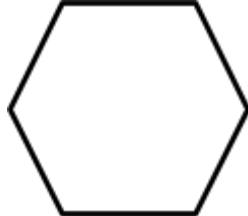
- a. Wednesday   b. Thursday   c. Friday  
d. Saturday   e. Sunday

34) A printing machine can print 250 flyers per minute. A folding machine can fold the flyers at the rate of 5 per second. If 6 printing machines were being used to print the flyers, then \_\_\_\_\_ folding machines would be needed to keep up with the 6 printing machines. 34) \_\_\_\_\_

35) Al and Ben set out to buy 300 golf balls, all of the same type. Al bought 120 balls and Ben bought 180. Charlie decides to join them and they decide that all 3 of them will pay an equal amount for the golf balls. Of the \$250 Charlie pays, \$ \_\_\_\_\_ will go to Al. 35) \_\_\_\_\_

36) The sum of the first six prime numbers is \_\_\_\_\_ more than the sum of the first six odd whole numbers. ( 1 is not a prime number) 36) \_\_\_\_\_

37) A diagonal is a line segment that connects any two corners of a figure that are not already connected. For the hexagon at the right, diagonals drawn from corner "A" will divide the hexagon into \_\_\_\_\_ triangles. 37) \_\_\_\_\_



38) The chart below shows the distance in miles between 4 towns located along a straight road. For instance, the distance between town A and town B is five miles. What is a possible order in which the towns appear along the road? 38) \_\_\_\_\_

	A	B	C	D
A	0	5	5	1
B	5	0	10	4
C	5	10	0	6
D	1	4	6	0

39) In one hour of checking auto speeds, 1200 cars passed the check point. It was found that 30% of the cars were traveling at or below the speed limit. Ninety percent of the remaining cars were not more than 5 miles per hour over the speed limit. How many of those 1200 cars were traveling more than 5 miles per hour over the speed limit? 39) \_\_\_\_\_

40) Find the smallest perfect square number that satisfies the requirement: "If it is decreased by one, then the new number is a multiple of 2, 3, 4, 5, and 6." 40) \_\_\_\_\_



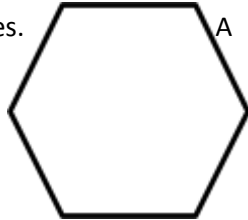
## Entering 8th Grade Honors Extended Summer Math

1) The sum of the first six prime numbers is \_\_\_\_\_ more than the sum of the first six odd whole numbers. ( 1 is not a prime number)

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

2) A diagonal is a line segment that connects any two corners of a figure that are not already connected. For the hexagon at the right, diagonals drawn from corner "A" will divide the hexagon into \_\_\_\_\_ triangles.

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



3) The chart below shows the distance in miles between 4 towns located along a straight road. For instance, the distance between town A and town B is five miles. What is a possible order in which the towns appear along the road?

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

	A	B	C	D
A	0	5	5	1
B	5	0	10	4
C	5	10	0	6
D	1	4	6	0

4) In one hour of checking auto speeds, 1200 cars passed the check point. It was found that 30% of the cars were traveling at or below the speed limit. Ninety percent of the remaining cars were not more than 5 miles per hour over the speed limit. How many of those 1200 cars were traveling more than 5 miles per hour over the speed limit?

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

5) Find the smallest perfect square number that satisfies the requirement: "If it is decreased by one, then the new number is a multiple of 2, 3, 4, 5, and 6."

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

6)  $6!$  means  $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ .  $4!$  Means  $4 \times 3 \times 2 \times 1$ .  $5!$  Is \_\_\_\_\_ times as large as  $3!$

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

7) What is the only number between 60 and 70 with an odd number of factors?

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

8) Find the sum of the two prime numbers less than 100 that are both one more than a multiple of 5 and two less than a multiple of 3.

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

9) An oriental rug comes in 3 sizes. Each side of the largest rug is 3 times as long as the corresponding side of the middle size rug. Each side of the middle size rug is twice as long as the corresponding side of the smallest rug. The ratio of the area of the largest rug to the area of the smallest rug is \_\_\_\_:\_\_\_\_.

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

10) Humphrey is 11 years old. In 13 years Humphrey will be half the average age his parents will be then. His mom was 21 when he was born. How old is Humphrey's father now?

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

11) Ivan and Devon each flip a coin. If the coins match, both heads and both tails, Ivan gets 5 points. If the coins do not match, one has a head and the other a tail, Ivan loses 2 points. After they each flip 60 times, Ivan has 160 points. Of the 60 flips, the coins matched \_\_\_\_\_ times.

11) \_\_\_\_\_

12) In the multiplication below, find what digit B represents.

$$1B5 \times 15 = 2025$$

13) A landfill wants to clean up a section that has 6 cubic yards of junk. They can remove 2 cubic feet of junk each day. How many days will it take to clear the 6 cubic yards of junk? (3 ft = 1 yd)

14) If any 31-day month is chosen at random, the probability that there is a 5<sup>th</sup> Sunday in that month is \_\_\_\_\_.

15) 1, 1, 2, 3, 5, 8, 13, 21, 34, 55,..... Is known as the Fibonacci sequence. After the first two terms (numbers), 1, 1, each succeeding term in the sequence is the sum of the two pervious terms (  $2 = 1 + 1$ ,  $3 = 1 + 2$ ,  $5 = 2 + 3$ ,  $8 = 3 + 5$ ,  $13 = 5 + 8$ , etc) The next perfect square number in the Fibonacci sequence after 1 is \_\_\_\_\_.

16) A palindrome is a number that reads the same forward or backward. For example: 313, 6446. On a digital clock the time 9:59 reads as a palindrome. The next possible time that reads as a palindrome on a digit clock after 9:59 will occur in \_\_\_\_\_ minutes.

17) What is the unit's digit in the number  $2^{51}$ ?

18) Mr. Davidson left Springfield at 8:00 am to travel to Columbia. He drove at 45 miles per hour for 3 hours and 60 miles per hour for the rest of the trip. He arrived at Columbia at 12:30pm that afternoon. How many miles is it from Springfield to Columbia?

19) In the division problem below, find the number represented by "ABB".

$$ABB \div 12 = 49$$

12) \_\_\_\_\_

13) \_\_\_\_\_

14) \_\_\_\_\_

15) \_\_\_\_\_

16) \_\_\_\_\_

17) \_\_\_\_\_

18) \_\_\_\_\_

19) \_\_\_\_\_

20) When Don goes jogging he runs a mile (5280 ft) in 8 minutes. After 15 minutes he still has to run \_\_\_\_\_ ft. to complete his 2<sup>nd</sup> mile.

20) \_\_\_\_\_

21) Mrs. Porter purchased 10 grapefruit and 20 plums. One grapefruit weighs the same as 3 plums. The weight of all 30 pieces of fruit is 175 ounces. The total weight of 2 grapefruit and 8 plums is \_\_\_\_ ounces.

21) \_\_\_\_\_

22) Two numbers are in the ratio 3:7. If the smaller of the two numbers is 18, what is the average of the two numbers?

22) \_\_\_\_\_

23) If AB is a two-digit number, then BA is the reversal of AB. For example, if AB=31, then BA = 13. If AB is 8 times a certain number, n, and BA, the reversal of AB is 3 times the same certain number, n, find the number represented by AB.

23) \_\_\_\_\_

24) If cans can be placed on top of one another standing straight up, how many cylindrical cans 4 inches in diameter and 6 inches high can be stored on a shelf 2 feet wide and 6 feet long if the shelf is 1 foot down from the ceilings?

24) \_\_\_\_\_

25) In Mr. Nagel's math class the final grade for the years is the average of the 8 major tests given during the year. Joe's final grade for the year was 90. His average on the first 3 major tests was 95. What was his average on the last 5 major tests?

25) \_\_\_\_\_

26) The number 3267 is divisible by 11 because the sums of alternating digits are equal.  $3 + 6 = 9$  and  $2 + 7 = 9$ . Using each of the digits 6, 7, 8, 9 once in each number, how many different 4-digit numbers can be formed that are divisible by 11?

26) \_\_\_\_\_

27) There are some people at a business meeting. Every 6 minutes half the people remaining at the meeting leave. Thirty minutes after the meeting began the next to last person left the meeting. How many people were at the meeting to begin with if no one entered once the meeting began?

27) \_\_\_\_\_

28) In Mrs. Monroe's kitchen there are 3 shelves with 8 cans of soup on each shelf. What is the least number of cans of soup that must be moved to make the ratio of 4:3:1 ?

28) \_\_\_\_\_

29) Adrienne's average on her first two math tests was 87. On the next 2 math tests it was 79; and the next 2 math tests after that it was 86. If her overall average after 9 math tests was 85, what was her average on the last 3 math tests?

29) \_\_\_\_\_

30) On one side of Ivy Hill Road the house numbers are consecutive odd numbers starting with 49 and ending with 175. The house numbers on the other side of the street are consecutive even numbers starting with 50 and ending with 222. How many houses are there on Ivy Hill Road?

30) \_\_\_\_\_

31) Two clocks show 12:00 noon, which is the correct time. The first clock is running properly. The second clock is running backward but at the correct rate. The next time both clocks show the correct time is \_\_\_\_\_pm.

31) \_\_\_\_\_

32) The smallest non zero number that is divisible by 5 but leaves a remainder of 1 when divided by 2,3, or 4 is 25. The next highest number divisible by 5 but leaving a remainder of 1 when divided by 2, 3, or 4 is \_\_\_\_\_

32) \_\_\_\_\_

33) The product of 3 ages (twin girls and their younger brother) is 36. What is the sum of their ages?

33) \_\_\_\_\_



34) There are \_\_\_\_ more 3-digit numbers consisting only of odd digits than 3-digit numbers consisting only of even digits. (Zero cannot be the leading digit of a 3-digit number)

34) \_\_\_\_\_

35) Barbara bought eight CD's. Each of the five least expensive CD's cost the same price. The 6<sup>th</sup> CD cost \$1 more than one of the least expensive CD's. The 7<sup>th</sup> CD cost \$1 more than the 6<sup>th</sup> and the 8<sup>th</sup> CD cost \$1.50 more than the 7<sup>th</sup> CD. She gave the clerk \$150 and received 30 cents change. The price of the most expensive CD was \_\_\_\_\_.

35) \_\_\_\_\_

36) The area of the bottom of a rectangular box is 30 sq in. The area of the front of the box is 20 sq in. The area of a side of the box is 24 sq in. The volume of the box is \_\_\_\_ sq in.

36) \_\_\_\_\_

37) In the US Congress 4500 bills were introduced but 2200 passed neither in the House of Representatives nor in the Senate. The House passed 1400 bills and the Senate passed 1700 bills. How many bills were passed in both the House and the Senate?

37) \_\_\_\_\_

38) The digits of a 3-digit number, with no 2 digits the same, are put in descending order. Another 3-digit number is formed by putting the same digits in ascending order. Subtract the smaller from the larger. Continue this process with each answer until you arrive at an answer that was the same as the previous answer. Example: Choose 261. From 621 and 126 and subtract getting 495. From 954 and 459 and subtract getting 495 again. Thus, 495 is the answer. Now find the answer for 586.

38) \_\_\_\_\_

39) What is the remainder when  $192^{400}$  is divided by 10?

39) \_\_\_\_\_

40) Find the smallest integer greater than 300 that is divisible by 3 and 13 but not by 4.

40) \_\_\_\_\_