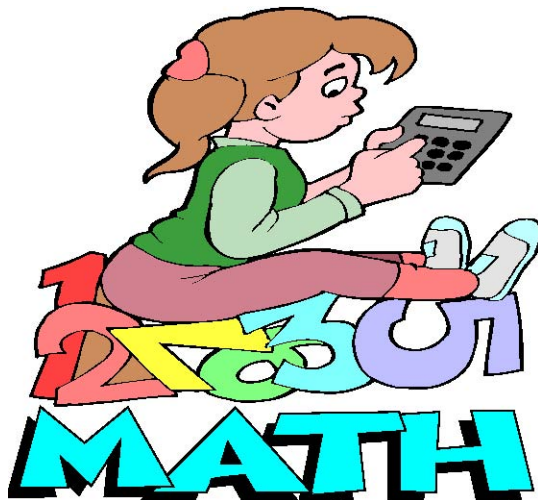


Rising 9th Graders'

Summer MIST Program

(Mathematics Independent Skills Training)



The Summer MIST Packet is divided into two sections:

Section 1 -Basic Skills and Process Problems (#1-16) Throughout this section, you may find it useful to use tools such as a protractor, straight edge, calculator, etc. (scientific calculators are recommended and used in class). In addition, the corresponding standard and online references are provided for extra practice to expand your knowledge or to strengthen any particular skill, if necessary.

Section 2 - Characteristics of Functions (#17- 35) The first unit in 9th Grade Math 1 (MM1) or Accelerated Math 1 (MA1) will build on your previous knowledge of functions introduced in the 8th-grade curriculum. Characteristics of Functions set the foundation to explore the nature of independent and dependent relationships. **This section contains practice questions from 8th and 9th grade curriculum to review and complete.**

This packet is due during the first week of school. You should show your work and/or explain your answers for all problems; some problems specifically instruct you to do so; no credit will be given for those problems if work is not shown. Please follow directions.

Rising 9th Graders' Summer Math Packet

27) (M8A3) Complete the table of values that represents the function rule? $y = 4x + 7$

x	-1	0	1	2	3
y	-8	-2	4	10	16

28) (M8D1) Circle the function rule that relates n and A in the arithmetic sequence 15, 11, 7, ...? Explain.

- A. $A = -n + 7$
- B. $A = -4n + 19$
- C. $A = -6n + 21$
- D. $A = 4n + 19$

Sara, Rez, and Jonah want to let their friends know about a party after school. Each of them calls two people in 3 minutes, all who then contact two different people 3 minutes later, and so on.

29) (M8A3) What are the 1st 4 terms of the pattern of number of people called every 3 minutes?

$T_1 =$

$T_2 =$

$T_3 =$

$T_4 =$

Describe that function rule for the number of people called every 3 minutes as a recursive sequence (for $n > 1$) in terms of n ?

$T_n =$

(M8A3, M8P) Company XYZ has started providing month-to-month internet service to its customers without having to sign a contract. They will charge clients two dollars per megabyte, M , received or sent with an access fee of \$10.00 per month.

30) This monthly bill, B , can be modeled by the equation:

Complete a table of values for the equation.

(M8A3, M8P) Jon and Nick took 5 tests in their math class this semester. They recorded their scores for each test in the chart below.

x	-1	0	1	2	3
y	-8	-2	4	10	16
Input X		2	3		5
Output Y	-1			23	

31) For his score, who had the greater:

mean (show work)?

range (show work)?

median?

Rising 9th Graders' Summer Math Packet

32) (M8NI, M8A3 extension & MM1A1) **Given the two functions:** $f(x) = 5x^2 - 3x - 8$ and $g(x) = 2x^2 - 9x + 1$. What is the sum of the two functions?

$H(x)$ is defined by $f(x) - g(x)$. What is $H(x)$?

33) (M8NI, M8A3) Solve given the two functions:

$f(x) = x + 4$ and $g(x) = x - 3$

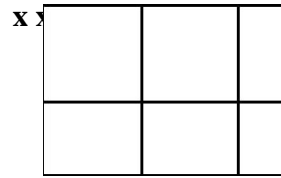
a. Find the product of the two functions

hint: use distributive property and then combine like terms?

b. Divide $f(x)$ by $g(x)$.

(Hint: express $f(x)$ as two binomials: $() ()$ divided by $g(x)$ or solve using long division method)

34) (M8NI, M8A3extension & MM1A2) **Complete the area model for multiplying polynomials** (Hint: same rule that would apply if this was a multiplication table).



Combine like terms above to show that

$(x + 2)(2x + 1) =$

Enrichment Problem:

35) (MM1A2) Apply The Binomial Theorem to: Expand $(x+3)^4$

Hint: $(x+3)^4 = (x+3)^2(x+3)^2$