

# GEORGIA HIGH SCHOOL GRADUATION TEST MATH REVIEW

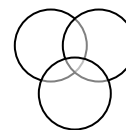
## STRAND 1 - NUMBER AND COMPUTATION 17-19%

- know different types of numbers. For example maps (interstate numbers, mileage, etc.), zip codes, phone numbers, social security numbers, time.
- SCIENTIFIC NOTATION  
     $2.4 \times 10^2$       if number is  $> 1$ , exponent is positive     $4325 \rightarrow 4.325 \times 10^3$   
    ↖                    if number is  $< 1$ , exponent is negative     $0.4325 \rightarrow 4.325 \times 10^{-3}$   
    number in front must be between 1 and 10  
    use EE or EXP button on calculator
- EXPONENTS  
     $3^2 = 9$  **not** 6
- HOW TO INTERCHANGE WITH FRACTIONS, DECIMALS, PERCENTS  
     $130\% = 1.30 = 13/10$
- PROPERTIES  
    Associative - the terms inside the grouping symbols change  $2 + (3 + 4) = (2 + 3) + 4$   
    Commutative - the order changes  $2 + 3 + 4 = 3 + 2 + 4$
- SOLVING AND WRITING EXPRESSIONS FOR WORD PROBLEMS  
    Insurance - deductibles  
    Interest             $I = Prt$   
    Discount - amount you save, sale price, amount of discount  
    Installment buying
- EXACT/APPROXIMATE CALCULATIONS  
    Receipts, Deposits, Checkbook balances for example should be exact  
    Food orders, time for travel, etc. can be approximate
- WHICH OPERATION?  
    Add - getting total but amounts are different  
    Subtract - difference, how much more than, how much less than  
    Multiply - getting total, but amounts are all the same  
    Divide - know total, but finding amount of each part or how many parts

## STRAND 2 - DATA ANALYSIS 19-21%

- ODDS VS PROBABILITY  
    If a team has 8 wins and three losses, the **odds** of winning are 8 to 3. The **probability** of winning is  $8/11$ .  
    Simplify fractions  
    Probability (A and B) means  $P(A)$  times  $P(B)$ . Be careful about problems without replacement  
    Probability (A or B) means  $P(A) + P(B)$
- MEAN, MEDIAN, MODE, RANGE  
    Mean - average  
    Median - PUT IN ORDER FIRST, then pick the middle number  
    Mode - occurs the most  
    Range - Highest minus lowest
- GRAPHS  
    Know when to use circle graphs (typically a breakdown with percents), bar graphs (show highest and lowest), line graphs (trends, increases and decreases), pictographs  
    Know how to interpret each of these types of graphs.
- VENN DIAGRAMS  
    Know how to interpret these. For example how many play football and basketball, but not baseball.

football    basketball



baseball

**STRAND 3 - MEASUREMENT AND GEOMETRY 32-34%**

• METRIC MEASUREMENTS

Look for prefixes like “kilo” which implies large. A kilometer is like a mile. A kilogram is like the weight of a textbook. One kilogram = 2.2 pounds. “milli” means small. A milligram is like the weight of a grain of salt. Celsius vs. Fahrenheit. Celsius is a smaller scale. Freezing in Celsius is 0 whereas freezing in Fahrenheit is 32.

• RULER MEASUREMENTS



• PERIMETER, AREA, VOLUME

Perimeter – fencing

Area – paint on a wall, wallpaper, grass on a lawn, Area is in square units

Volume – pouring concrete, how much liquid can something hold. Volume is in cubic units

• TRANSFORMATIONS

Reflection – “flip”



Translation – “slide”

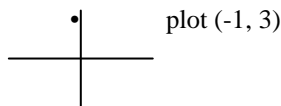


Rotation – “turn”



• COORDINATE PLANE

Plotting points and naming points with ordered pairs.



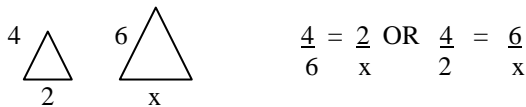
• RATIO/PROPORTION WORD PROBLEMS

If a car can travel 10 miles on 3 gallons of gas. How many miles can it travel on 4 gallons.

$$\frac{10}{3} = \frac{x}{4}$$

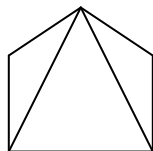
• SIMILAR FIGURES

Sides are proportional



• SUM OF INTERIOR ANGLES OF A POLYGON

use either  $S = 180(n-2)$  or draw triangles inside the figure and multiple the number of triangles by 180.



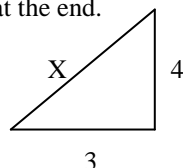
$$(180)(3) = 540 \text{ pentagon}$$

• PYTHAGOREAN THEOREM

$$A^2 + B^2 = C^2$$

Use this to find the missing sides of a **right** triangle. Always let “C” be the hypotenuse.

Look out for problems that require extra steps at the end.



$$\begin{aligned} 3^2 + 4^2 &= x^2 \\ 9 + 16 &= x^2 \\ 25 &= x^2 \\ 5 &= x \end{aligned}$$

• PARALLEL LINES

- FORMULAS

**MEMORIZE THE FOLLOWING**

- Perimeter – add up all the sides
- Perimeter of a square –  $4s$
- Area of a Rectangle =  $LW = Bh$
- Area of a Triangle =  $1/2Bh$
- Area of Parallelogram =  $Bh$
- Area of a Circle =  $\pi r^2$
- Circumference of a Circle =  $2\pi r$
- Volume of a Rectangular Solid =  $LWH$
- Distance = rate times time
- Interest -  $Prt$

**STRAND 4 – ALGEBRA      28-30%**

- ORDER OF OPERATIONS

P E M A                      power, exponent, multiply, add  
 D S                              divide      subtract

- TRANSLATIONS

Sum, difference, product, quotient, more than, less than, twice

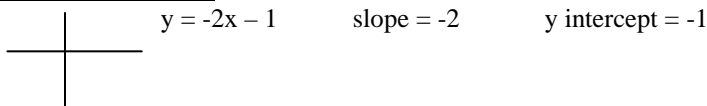
- EVALUATE AND SIMPLIFY EXPRESSIONS

Be careful about when you are allowed to simplify and when you are not.

$\frac{2x + y}{y}$  is already simplified       $\frac{2xy}{y}$  is not simplified (becomes  $2x$ )

- SOLVING EQUATIONS

- GRAPHING LINES



- SLOPE FORMULA

$m = \frac{y_2 - y_1}{x_2 - x_1}$       (remember the y's are up top)

Find the slope of the line through  $(-2, 4)$  and  $(-6, 8)$

$$m = \frac{8 - 4}{-6 - (-2)} = \frac{4}{-4} = -1$$

- SYSTEMS OF EQUATIONS

Solve     $x + y = 4$                        $x + y = 4$   
            $x - y = 8$                           $\underline{x - y = 8}$   
    $2x = 12$   
    $x = 6$  then plug it in to get "Y"     $y = -2$

**MATH REVIEW PROBLEMS**

1. On a scaled map, a distance of  $\frac{1}{4}$  cm represents 5 km. If a street is 750 km, what is its length on the map?
2. You have two test grades of 84 and 82. What must you get on the third test to have an average of 85?

3. Out of 40 sandwiches, 19 are turkey, 9 are bologna, and the rest are tuna. If one sandwich is randomly picked, what is the probability of picking tuna?
  
4. If Joe owns 3 shirts, 4 pairs of pants, and 5 belts, how many outfits can he make?
  
5. A motorist drives 90 miles at a rate of 20 miles per hour. If he returns on a bus and goes the same distance at a rate of 40 miles per hour, what is his average speed for the entire trip?
  
6. A certain taxi cab costs \$5.00 for the first mile and \$1.20 for each additional mile./ If the ride is  $x$  miles and  $x > 1$ , which of the following expresses the cost of the ride?
  - a.  $5.00 + 1.20x$
  - b.  $5.00 + 1.20(x+1)$
  - c.  $5.00 + 1.20(1-x)$
  - d.  $5.00 + 1.20(x-1)$
  - e.  $5.00 - 1.20x$
  
7. A one gallon mixture is three parts water to one part acid. If one gallon of water is added, what is the ratio of water to acid?
  
8. A circular sprinkler sprays water a distance of 4 m. Find the area of the grass that would be watered.