**EOG STUDY NOTES**

**Order of Operations –** PEMDAS – OR – slice before addition or subtraction signs

**Integer Rules –**

**Addition and Subtraction -** 1. No double signs

 2. Same add, different subtract (Heaps and Holes)

 3. Take the sign of the larger

**Multiplication and Division –** Same signs positive, different signs negative (tic,tac,toe)

**Combining Like Terms –** You can only combine terms that have same variables; follow integer rules

**Solving Equations –** 1. Do distributive property

 2. Combine like terms (check to see if variable on same or different sides)

 3. Undo addition or subtraction, follow integer rules

 4. Undo multiplication or division, follow integer rules

**Inequalities –** If the coefficient is negative you must FLIP the inequality symbol

**Decimal Rules –**

**Addition and Subtraction –** Line up the decimals, put zeros in the blanks

**Multiplication –** Count the decimal places in the

**Division –** Can’t divide decimals, you must move the decimal on the outside and move it on

 the inside (watch the decimal – it has to be moved straight up carefully)

**Fraction Rules –**

**Addition and Subtraction –** Must have common denominator before adding or subtracting, if change denominator, must get new numerator by doing equal ratios, add numerators, keep denominator, reduce or change to mixed number if needed

**Multiplication and Division –** Must change mixed numbers to fractions first, ccf (copy, change, flip) division to multiplication of the inverse, cross reduce (don’t change multiplication), multiply across, reduce or change back to mixed number if needed

**Proportions** $\frac{}{}=\frac{}{}$when setting them up, make sure the ratios match, cross multiply and divide to solve the proportion

**Equation for Graph –** General ordered pair for unit rate is (1,r) or $\frac{r}{1}$ this is the constant of proportionality Equation: $y=mx$where m is the constant of proportionality ($\frac{rise}{run}$)

**Scale Factor -** $\frac{model}{real}=\frac{model}{real}$ **Indirect Measurement -** $\frac{height}{shadow}=\frac{height}{shadow}$

**Similar Figures –** Corresponding sides are proportional, match up corresponding sides $\frac{}{}=\frac{}{}$

 - Corresponding angles are equal, there are 180˚ in a triangle

**Percent Proportions –** $\frac{is part}{of the whole}=\frac{\%}{100}$Always put the % over 100, figure out which number is the part, and which number is the whole, solve the proportion

**Percent of Change/Percent of Discount/Sales Tax Rate -** $\frac{difference}{original}=\frac{\%}{100}$Subtract the two numbers to find the difference and put it over the original amount, solve the proportion

**Percent of Error -** $\frac{difference}{actual}=\frac{\%}{100}$

**Discount, Tax, and Tip –** These are PARTS $ x %

**Sales Price –** These are WHOLES; subtract from 100 first then $ x %

**Total Cost –** These are WHOLES; add to 100 first then $ x %

**Interest –** Multiply the $ x % x year (if given the months you must divide by 12)

**Total Amount with Interest –** Multiply to find the interest, then add

**Circumference – C =** $2πr$ **Area =** $πr^{2}$

**Volume of any figure –** $V=Bh$(B is the base area – need to cover the bottom) (h is the height – how high you can stack them) **Pyramids–** Only hold 1/3 of what prisms do so $÷3$

**Rectangular Prism –** $V=lwh$ **Triangular Prism –** $V= \frac{lwh}{2}$ **Pyramid – V =** $\frac{lwh}{3}$

**Surface Area –** to cover (area) all surfaces on a figure

 **Rectangular Prism –** f,b,l,r,t,b and add them up

 **Triangular Prism –** t,t,r,r,r and add them up (remember to divide triangles by 2)

 **Square Pyramid =** sq, t, t, t, t, and add them all up (remember to divide triangles by 2)

**Mean –** Add and divide by how many numbers

**Median –** middle number when in order (if two middle numbers add them and divide by 2)

**Outlier –** Number that is way off from the others; affects mean most so use median to describe data

**Lower Extreme –** Smallest Number **Upper Extreme –** Largest Number

**Lower Quartile –** Middle of lower half **Upper Quartile –** Middle of upper half

**Range –** Highest minus lowest

**Interquartile Range –** Upper quartile minus lower quartile, size of the box

**Box and Whisker Plots –** Each part of the plot is 25% or ¼, NO matter what size that part looks like

**MAD –** Find the mean, subtract from each data value, find the mean of the differences

**Random Sample –** Population is the entire groups surveyed; sample is small group asked; to be random everyone in the population needs to be represented

**Probability** – To list all outcomes use a tree diagram, make a list, or use an area model

**Simple Events** – 1 Event, OR , Add the numerators but not the denominators

**Compound Events** – 2 or more events, AND, Multiply the numerators and denominators

**Complementary Angles –** 2 angles that equal 90$°$ **Supplementary Angles –** 2 angles that equal 180$°$ **Vertical Angles –** 2 angles that are opposite one another and equal

**Adjacent Angles –** angles that are side by side