**Math 2 – Things to Remember**

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| **Probability**  Sets: Know union and intersections & how to create Venn diagrams from info  Probability =  Odds=  P(A and B) = P(A) \* P(B)  P(A or B) = P(A) + P(B) – P(A and B)  Complement: AC = 1-P(A)  Conditional Probability  ~~Permutations: without replacement and order matters.~~  ~~n~~~~P~~~~r~~  ~~Combinations: without replacement and order does not matter.~~  ~~n~~~~C~~~~r~~  ~~Factorial (!) 5! = 5\*4\*3\*2\*1~~  **Transformations**  Reflections  Rotations (counterclockwise)  (Same as 270 clockwise)  (Same as 90 clockwise)  Translations  Dilations | **Similarity**  Two figures are similar if they have all corresponding angles congruent AND if all corresponding sides are proportional (must have the same scale factor for all sides)  Ways to Prove Triangles Similar  AA~ SSS~ SAS~  **Congruence**  Two figures are congruent if all corresponding angles and sides are congruent.  Ways to Prove Triangles Congruent  SSS SAS ASA AAS HL  \***NEVER** ASS OR SSA\*  \*Corresponding parts of congruent triangles are always congruent (CPCTC)\*  **Triangles**  Scalene – no congruent sides  Isosceles – at least 2 congruent sides  Base angles of isosceles triangles are congruent  Equilateral – 3 congruent sides  Acute – all angles <90 degrees  Right – one 90 degree angle  Obtuse – one obtuse angle (>90)  Equiangular – 3 congruent angles  EquilateralEquiangular  Mid-segments of triangles are half the length of their parallel side.  ~~Rotational Symmetry: A rotation which the figure is its own image.~~ *~~To find the rotational degrees where a polygon will rotate onto its own image~~*~~, take 360~~~~o~~~~/# of sides.~~ | | **Multiplying Polynomials**  Multiply: (distribute or foil or box)  or  **Solve Quadratic Equations**  \*Must be set equal to 0 at first\*  Set each factor equal to zero & solve  x2-5x+6=0 so (x-3)(x+2) so x=3 &-2  Factoring:  Look to see if there a GCF (greatest common factor) first!  Factor 3 terms:  Find two numbers that multiply to give a\*c but add to give b value  Use these two numbers to help factor using a box method.   |  |  | | --- | --- | |  |  | |  |  |   Factor 4 terms (Grouping):  Check for GCF first. Place all 4 terms into a box and factor.  Difference of Squares:  Square roots:  Isolate the variable and take the square root of each side. | | **Quadratic Formula**  \*Must be set equal to 0 at first\*  Discriminant: tells info about roots  Two real roots  Perfect Square: factorable  Non perfect square: quad formula  Graph has two x-intercepts  One real roots  This root will be repeated 2 times  Graph has one x-intercept  Zero real roots  Two imaginary/complex roots  Graph will have zero x-intercepts  **Graphing Parabolas**  Axis of symmetry:  Vertex: \*Substitute the axis of symmetry into the function\*  +a: parabola will have a minimum and open up  -a: parabola will have a maximum and open down.  Domain: all real numbers  Range: Look at the y-value of vertex. Your graph is greater/equal or less/equal to this number.  **Function Transformations**  Reflections across x & y axes  Up, down, left & right  Horizontal & Vertical Stretch  Hori & Vert Compression (Shrinks) |
| **Exponent Rules**  or  **Exponent Form**: **Radical Form**:  **Polynomials**  \*Combine Like Terms\*  ~~Exponential Growth~~    ~~b=1+r~~  ~~Exponential Decay~~  ~~b=1-r~~  ~~Half Life~~  ~~Compound Interest~~ | | **Solving Exponential Equations**  because bases are same  ~~Bases aren’t same: Isolate the exponential expression, take the log of both sides and solve.~~  **Advanced Functions**  Solving Rational/Radical Equations  1: Isolate the radical  2: Square or cube the radical to eliminate it  3. Solve the multistep equation for the variable  4. Substitute answers into original equation to check for extraneous solutions.  Direct Variation  “y varies directly with x” Solve:  Inverse Variation  “y varies inversely with x” Solve: xy=xy  Direct/Inverse Variation (combined)  “y varies directly with x and inversely with z”  **Graphing**  Quadratics, Reciprocal (inverse variation), Square Root, Cubed Root | | **Trigonometry**  \*Calculator in degree mode unless otherwise stated\*  ~~Trig Graphs~~  ~~Amplitude: Midline: y=c~~  ~~Find midline from a graph:~~  ~~Tangent graphs have asymptotes where undefined.~~  Pythagorean Theorem:  Use regular trig for find missing sides  Use inverse trig for finding missing angles  Angle of Elevation: From horizontal line of sight – up  Angle of Depression: horizontal line of sight – down  ~~Area of Oblique Triangle (2 sides + 1 angle)~~  ~~Law of Sines: ASA or AAS Triangles~~  ~~Law of Cosines: SSS or SAS Triangles~~ | |