**Math 2 – Things to Remember**

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| **Probability**Sets: Know union and intersections & how to create Venn diagrams from infoProbability = 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**ReflectionsRotations (counterclockwise)(Same as 270 clockwise)(Same as 90 clockwise)TranslationsDilations | **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 SimilarAA~ SSS~ SAS~**Congruence**Two figures are congruent if all corresponding angles and sides are congruent. Ways to Prove Triangles CongruentSSS SAS ASA AAS HL\***NEVER** ASS OR SSA\*\*Corresponding parts of congruent triangles are always congruent (CPCTC)\***Triangles**Scalene – no congruent sidesIsosceles – at least 2 congruent sidesBase angles of isosceles triangles are congruentEquilateral – 3 congruent sidesAcute – all angles <90 degreesRight – one 90 degree angleObtuse – one obtuse angle (>90)Equiangular – 3 congruent anglesEquilateralEquiangularMid-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 & solvex2-5x+6=0 so (x-3)(x+2) so x=3 &-2Factoring: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 valueUse these two numbers to help factor using a box method.

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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 axesUp, down, left & rightHorizontal & Vertical StretchHori & 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 Equations1: Isolate the radical2: Square or cube the radical to eliminate it3. Solve the multistep equation for the variable4. 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=xyDirect/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 sidesUse inverse trig for finding missing anglesAngle of Elevation: From horizontal line of sight – upAngle 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~~  |