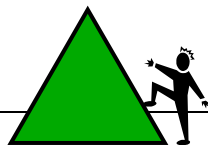
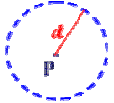
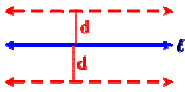
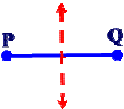
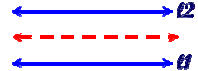
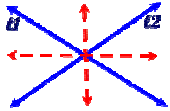
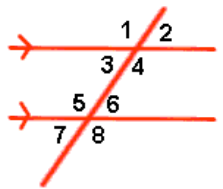
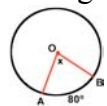
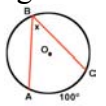
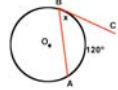
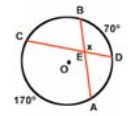
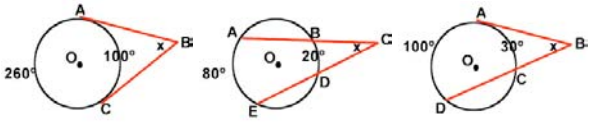


Geometry – Things to Remember!



<p>3-D Figures:</p> <p>Prism: $V = Bh$</p> <p>Pyramid: $V = \frac{1}{3}Bh$</p> <p>Cylinder: $V = \pi r^2 h$; $SA = 2\pi r + 2\pi r^2$</p> <p>Cone: $V = \frac{1}{3}\pi r^2 h$; $SA = s\pi r + \pi r^2$</p> <p>Sphere: $V = \frac{4}{3}\pi r^3$; $SA = 4\pi r^2 = \pi d^2$</p>	<p>Regular Solids:</p> <p>Tetrahedron – 4 faces Cube – 6 faces Octahedron – 8 faces Dodecahedron – 12 faces Icosahedron – 20 faces</p>	<p>Locus Theorems:</p> <p>Fixed distance from point. </p> <p>Fixed distance from a line. </p> <p>Equidistant from 2 points. </p> <p>Equidistant 2 parallel lines. </p> <p>Equidistant from 2 intersecting lines. </p>
<p>Polygon Interior/Exterior Angles:</p> <p>Sum of int. angles = $180(n - 2)$</p> <p>Each int. angle (regular) = $\frac{180(n - 2)}{n}$</p> <p>Sum of ext. angles = 360</p> <p>Each ext. angle (regular) = $\frac{360}{n}$</p>	<p>Triangles:</p> <p>By Sides:</p> <p>Scalene – no congruent sides Isosceles – 2 congruent sides Equilateral – 3 congruent sides</p> <p>By Angles:</p> <p>Acute – all acute angles Right – one right angle Obtuse – one obtuse angle Equiangular – 3 congruent angles(60°) Equilateral ↔ Equiangular</p> <p>Exterior angle of a triangle equals the sum of the 2 non-adjacent interior angles.</p> <p>Mid-segment of a triangle is parallel to the third side and half the length of the third side.</p>	<p>Congruent Triangles</p> <p>SSS SAS ASA AAS HL (right triangles only)</p> <p>NO donkey theorem (SSA or ASS)</p> <p>CPCTC (use after the triangles are congruent)</p>
<p>Related Conditionals:</p> <p>Converse: switch if and then Inverse: negate if and then Contrapositive: inverse of the converse (contrapositive has the same truth value as the original statement)</p>	<p>Exterior angle of a triangle equals the sum of the 2 non-adjacent interior angles.</p> <p>Mid-segment of a triangle is parallel to the third side and half the length of the third side.</p>	<p>Inequalities:</p> <p>--Sum of the lengths of any two sides of a triangle is greater than the length of the third side. --Longest side of a triangle is opposite the largest angle. --Exterior angle of a triangle is greater than either of the two non-adjacent interior angles.</p>
<p>Pythagorean Theorem:</p> <p>$c^2 = a^2 + b^2$</p> <p>Converse: If the sides of a triangle satisfy $c^2 = a^2 + b^2$ then the triangle is a right triangle.</p>	<p>Similar Triangles:</p> <p>AA SSS for similarity SAS for similarity Corresponding sides of similar triangles are in proportion.</p>	<p>Mean Proportional in Right Triangle:</p> <p>Altitude Rule: $\frac{\text{part of hyp}}{\text{altitude}} = \frac{\text{altitude}}{\text{other part hyp}}$</p> <p>Leg Rule: $\frac{\text{hypotenuse}}{\text{leg}} = \frac{\text{leg}}{\text{projection}}$</p>

<p>Parallels: If lines are parallel ...</p>  <p>Corresponding angles are equal. $m\angle 1 = m\angle 5$, $m\angle 2 = m\angle 6$, $m\angle 3 = m\angle 7$, $m\angle 4 = m\angle 8$</p> <p>Alternate Interior angles are equal. $m\angle 3 = m\angle 6$, $m\angle 4 = m\angle 5$</p> <p>Alternate Exterior angles are equal. $m\angle 1 = m\angle 8$, $m\angle 2 = m\angle 7$</p> <p>Same side interior angles are supp. $m\angle 3 + m\angle 5 = 180$, $m\angle 4 + m\angle 6 = 180$</p>	<p>Quadrilaterals:</p> <p>Parallelogram: opp sides parallel opp sides = opp angles = consec. angles supp diag bis each other</p> <p>Rectangle: add 4 rt angles, diag. =</p> <p>Rhombus: add 4 = sides, diag. perp, diag bisect angles.</p> <p>Square: All from above.</p> <p>Trapezoid: Only one set parallel sides. Median of trap is parallel to both bases and = $\frac{1}{2}$ sum bases.:</p> <p>Isosceles Trap: legs = base angles = diagonals = opp angles supp</p>	<p>Transformations:</p> <p>$r_{x\text{-axis}}(x, y) = (x, -y)$</p> <p>$r_{y\text{-axis}}(x, y) = (-x, y)$</p> <p>$r_{y=x}(x, y) = (y, x)$</p> <p>$r_{y=-x}(x, y) = (-y, -x)$</p> <p>$r_{\text{origin}}(x, y) = (-x, -y)$</p> <p>$T_{a,b}(x, y) = (x + a, y + b)$</p> <p>$D_k(x, y) = (kx, ky)$</p> <p>$R_{90^\circ}(x, y) = (-y, x)$</p> <p>$R_{180^\circ}(x, y) = (-x, -y)$</p> <p>$R_{270^\circ}(x, y) = (y, -x)$</p> <p>Glide reflection is composition of a reflection and a translation.</p> <p>Isometry – keeps length.</p> <p>Orientation – label order</p>
<p>Circle Segments In a circle, a radius perpendicular to a chord bisects the chord.</p> <p>Intersecting Chords Rule: (segment part)•(segment part) = (segment part)•(segment part)</p> <p>Secant-Secant Rule: (whole secant)•(external part) = (whole secant)•(external part)</p> <p>Secant-Tangent Rule: (whole secant)•(external part) = (tangent)²</p> <p>Hat Rule: Two tangents are equal.</p>	<p>Circle Angles: Central angle = arc</p>  <p>Inscribed angle = half arc</p>  <p>Angle by tangent/chord = half arc</p>  <p>Angle formed by 2 chords = half the sum of arcs</p>  <p>Angle formed by 2 tangents, or 2 secants, or a tangent/secant = half the difference of arcs</p> 	<p>Circles: Equation of circle center at origin: $x^2 + y^2 = r^2$ where r is the radius.</p> <p>Equation of circle not at origin: $(x - h)^2 + (y - k)^2 = r^2$ where (h, k) is the center and r is the radius.</p>
<p>Slopes and Equations:</p> $m = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{y_2 - y_1}{x_2 - x_1}$ <p>$y = mx + b$ slope-intercept</p> <p>$y - y_1 = m(x - x_1)$ point-slope</p>	<p>Coordinate Geometry Formulas:</p> <p>Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p> <p>Midpoint Formula: $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$</p>	