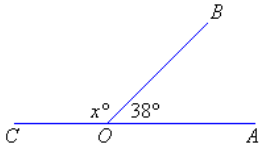
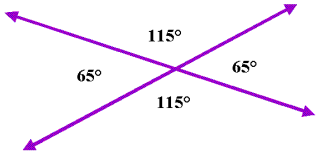
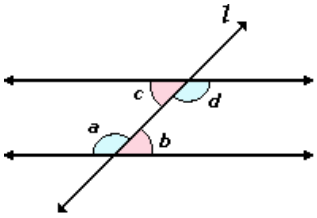
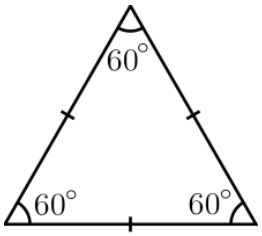
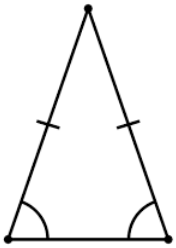
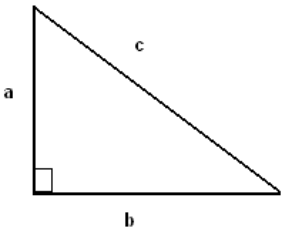
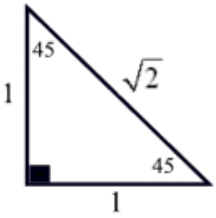
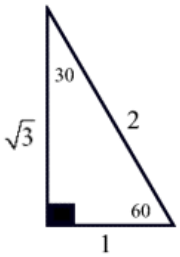
Math Formulas

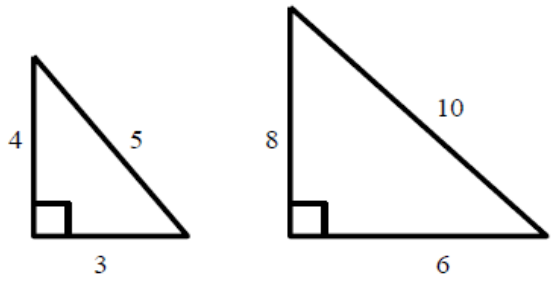
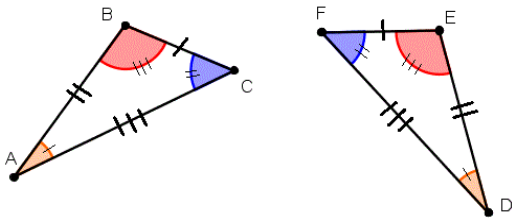
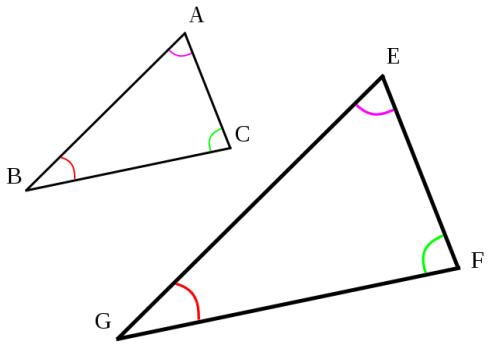
Angles

Right Angles measure 90 degrees	
Supplementary angles add up to 180 degrees	
Vertical angles are congruent	
For parallel lines cut by a transversal, alternate interior angles are congruent	

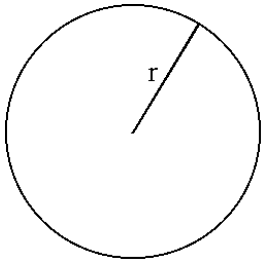
Triangles

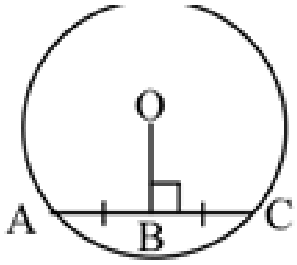
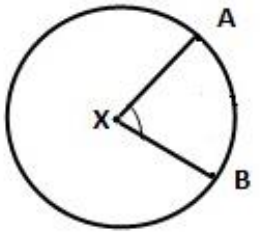
For ALL TRIANGLES, the 3 angles add to 180 degrees and Area A= (½) base * height

Equilateral Triangle has 3 identical sides and 3 identical angles of 60 degrees (since 60 + 60 + 60 = 180)	
Isosceles Triangle has 2 identical sides and 2 identical angles	
Right Triangle has one 90 degree angle, sides that satisfy $a^2+b^2=c^2$ (Pythag. Thm.), and the other 2 angles are <90 degrees	
45-45-90 Right Triangle has sides with ratio 1:1:√2	
30-60-90 Right Triangle has sides with ratio 1:2:√3 (hypotenuse = 2)	

3-4-5 Right Triangle has sides proportional to 3, 4, & 5	
Congruent Triangles have identical side lengths and angles. They may have been rotated or reflected relative to one another and still be congruent.	
Similar Triangles have identical corresponding angles & proportional side lengths	

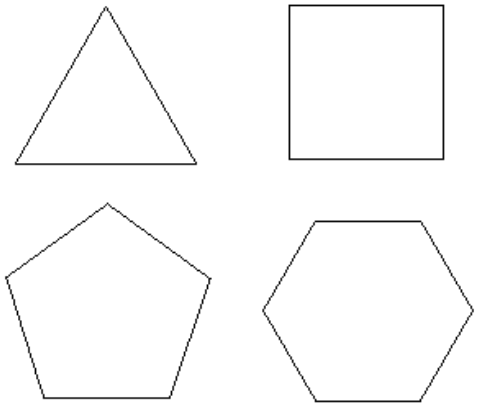
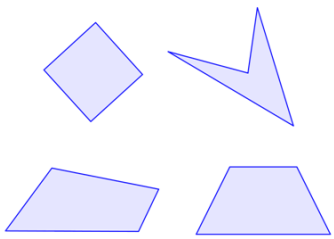
<u>Circles</u>

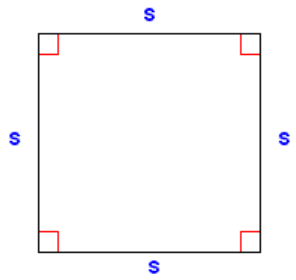
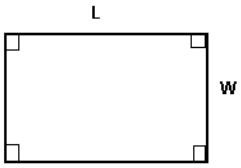
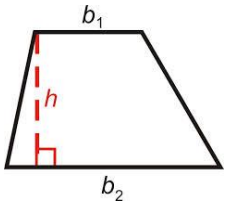
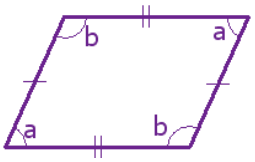
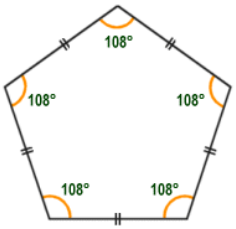
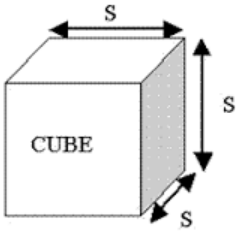
Area A = $\prod r^2$ Circumference C = $2\prod r$ Diameter d = 2r	

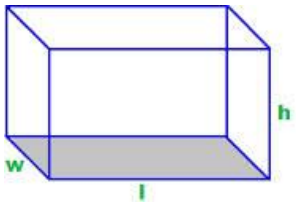
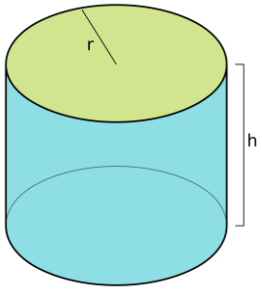
The perpendicular bisector of a chord in a circle passes through the center of the circle	
Measure of arc AB = x Length of arc AB = $2\prod r\left(\frac{x}{360}\right)$	

Polygons

Interior angles of n-sided polygon add up to (n-2)*180
Perimeter of a polygon is the sum of the side lengths

Regular Polygon has equal side lengths and equal angles each measuring $\frac{(n-2)\cdot 180}{n}$	
Quadrilateral is a 4-sided polygon The angles of a quadrilateral sum to (4-2)180 = 360	

Square with side length s Area = s^2 Perimeter = 4s	
Rectangle Area = lw Perimeter = 2l + 2w	
Trapezoid is a quadrilateral with one pair of parallel sides. Find area by dividing into simpler shapes. $A = \frac{b1+b2}{2}h$	
Parallelogram is a quadrilateral with two pairs of parallel sides. Opposite sides are equal, opposite angles have equal measure.	
Regular Pentagon is a 5-sided polygon with equal sides and equal angles. The five angles each measure (5-2)180/5=108	
Cube $V = s^3$ $A = 6s^2$	

Box V = lwh A = 2lw + 2lh + 2wh	
Cylinder V = ∏r^{2}h	

<u>Other Formulas to Know</u>

Negative Exponent: $x^{-n} = 1/x^n$

Raising Power to Powers: Multiply exponents

ex) $(x^2)^3 = x^6$

Multiplying Power Exponents: Add exponents and keep the same base

ex) $(x^2)(x^3) = x^5$

Dividing Power Exponents: Subtract exponents and keep same base

ex) $x^6 / x^4 = x^2$

Factoring Difference of squares

$a^2 - b^2 = (a+b)(a-b)$

FOIL: First, Outside, Inside, Last

ex) (x-3) - (x+5) =

$x^2 + 5x - 3x - 15 =$

$x^2 + 2x - 15$

Midpoint Formula: $(\frac{x1+x2}{2}, \frac{y1-y2}{2})$

Percents: Use proportions

ex) 75% of 300: $\frac{75}{100} = \frac{x}{300}$