THE STANDARD DEVIANTS Present

The Many-Sided World of Geometry (Part 2)

Useful Theorems

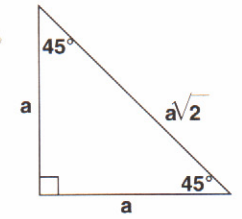
- The sum of the measures of the angles in a convex polygon with n sides is: $(n\text{-}2)180$ degrees.
- Opposite sides of a parallelogram are congruent.
- **The Side-Angle-Side Similarity Theorem:** If one angle of one triangle is congruent to one angle of another triangle AND the sides that form the angles are in proportion, then the triangles are similar.
- **The Side-Side-Side Similarity Theorem:** If the sides of two triangles are in proportion, then the triangles are similar.
- **The Pythagorean Theorem:** For all right triangles with legs of length a and b and hypotenuse of length c, then $a^2 + b^2 = c^2$.

Useful Postulates

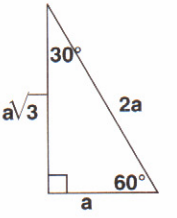
- **The Angle-Angle Similarity Postulate:** If two angles of one triangle are congruent to two angles of another triangle, then the two triangles are similar.
- **The Area Congruence Postulate:** If two figures are congruent, then they have the same area.
- **The Area Addition Postulate:** The area of a polygonal region is the sum of the areas of its non-overlapping parts.

Special Right Triangles

- 45-45-90 Right Triangle:



- 30-60-90 Right Triangle:



Basic Conversions

1 foot = 12 inches
1 yard = 3 feet
1 mile = 5280 feet
1 meter = 100 centimeters
1 kilometer = 1000 meters
1 inch = 2.54 centimeters

Useful Formulas

circumference of a circle: $c = 2\pi r$

area of a square: $A = s^2$

area of a rectangle: $A = lw$

area of a parallelogram: $A = bh$

area of a triangle: $A = \frac{1}{2}bh$

area of a trapezoid: $A = \frac{1}{2}(base\ 1 + base\ 2)h$

area of a circle: $A = \pi r^2$

surface area of a right cylinder: $SA = 2\pi rh + 2\pi r^2$

surface area of a sphere: $SA = 4\pi r^2$

volume of a right prism: $V = area\ of\ the\ polygonal\ base\ times\ height$

volume of a cylinder: $V = area\ of\ the\ circular\ base\ times\ height$

volume of a sphere: $V = \frac{4}{3}\pi r^3$

# of sides	polygon
3	triangle
4	quadrilateral
5	pentagon
6	hexagon
7	heptagon
8	octagon
n	n-gon