Calculating Area & Volume

Circle

Area = Square of Diameter x .7854
or Square of Radius x 3.1416
Circumference = Diameter x 3.1416
Diameter = Circumference x .3183

Doubling diameter increases area four times; tripling diameter increases area nine times, etc.

Square

Area = Square of Side
Diagonal = Side x 1.4142
Side = Diagonal x .7071

Square Inscribed in Circle

Side of Square = Diameter of Circle x .7071
Circumference of Circle x .2251
Diameter of Circle = Side of Square x 1.4142
Circumference of Circle = Side of Square x 4.4429

Square and Circle With Equal Area

Side of Square = Diameter of Circle x .8862
Diameter of Circle = Side of Square x 1.128
Circumference of Circle = Side of Square x 3.545

Rectangle

Area = Length x Width
Diagonal = Square root of sum of squares of Width and Length

Triangle

Area = Base x ½ of Perpendicular Height

Cube

Area of Surface = Square of Side x 6
Volume = Cube of Side
Diagonal = Side x 1.732

Pyramid

Lateral Surface Area (not including base) = Perimeter of Base x ½ Slant Height
Volume = Area of Base x $^1/_3$ Perpendicular Height

Hexagon (equal sides and angles)

Area = Square of Distance across Flats x .866
or square of Side 2.598
Side = ½ of Diagonal
or Distance across Flats x .577
Diagonal = Distance across Flats x 1.155
or Side x 2

Octagon (equal sides and angles)

Area = Square of Distance across Flats x .828
or Square of Side x 4.828
Side = Diagonal x .383
or Distance across Flats x .414
Diagonal = Distance across Flats x 1.082
or Side x 2.613

Sphere

Area of Surface = Square of Diameter x 3.1416
Volume = Cube of Diameter x .5236

Cylinder

Area of Curved Surface = Diameter x Length x 3.1416
Volume = Square of Diameter x Length x .7854

Cone

Area of Curved Surface = Diameter of Base x Slant Height x 1.5708
Volume = Diameter of Base Squared x Perpendicular Height x .2618
or Area of Base x $^1/_3$ Perpendicular Height