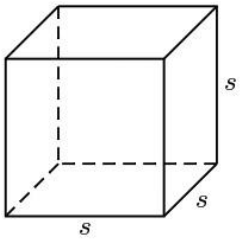
3D GEOMETRY FORMULAS

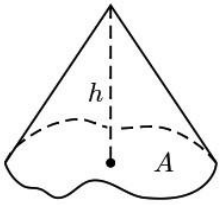
CUBE

s = side
Volume: $V = s^3$
Surface Area: $S = 6s^2$



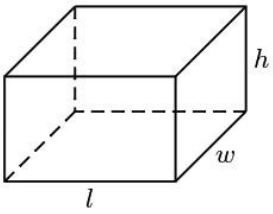
GENERAL CONE OR PYRAMID

A = area of base, h = height
Volume: $V = \frac{1}{3}Ah$



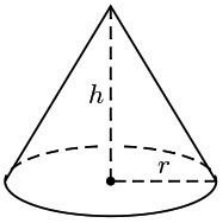
RECTANGULAR SOLID

l = length, w = width,
h = height
Volume: $V = lwh$
Surface Area:
$S = 2lw + 2lh + 2wh$



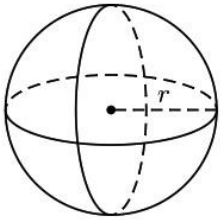
RIGHT CIRCULAR CONE

r = radius, h = height
Volume: $V = \frac{1}{3}\pi r^2 h$
Surface Area:
$S = \pi r\sqrt{r^2 + h^2} + \pi r^2$



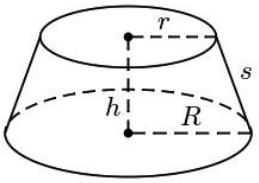
SPHERE

r = radius
Volume: $V = \frac{4}{3}\pi r^3$
Surface Area: $S = 4\pi r^2$



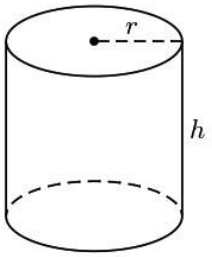
FRUSTUM OF A CONE

r = top radius, R = base radius,
h = height, s = slant height
Volume: $V = \frac{\pi}{3}(r^2 + rR + R^2)h$
Surface Area:
$S = \pi s(R + r) + \pi r^2 + \pi R^2$



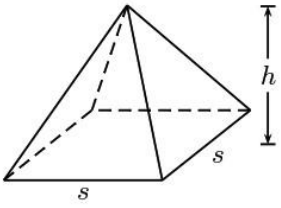
RIGHT CIRCULAR CYLINDER

r = radius, h = height
Volume: $V = \pi r^2 h$
Surface Area: $S = 2\pi rh + 2\pi r^2$



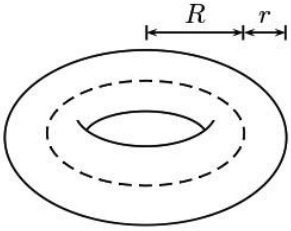
SQUARE PYRAMID

s = side, h = height
Volume: $V = \frac{1}{3}s^2 h$
Surface Area:
$S = s(s + \sqrt{s^2 + 4h^2})$



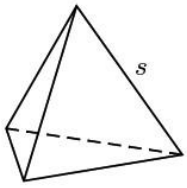
TORUS

r = tube radius,
R = torus radius
Volume: $V = 2\pi^2 r^2 R$
Surface Area: $S = 4\pi^2 rR$



REGULAR TETRAHEDRON

s = side
Volume: $V = \frac{1}{12}\sqrt{2}s^3$
Surface Area: $S = \sqrt{3}s^2$



- **pi** = 2 * acos(0.0);
- Convert **Radian** to **Degree**: **sin(**val *** (pi / 180.0));** **asin(**val**) * (180.0 / pi);**