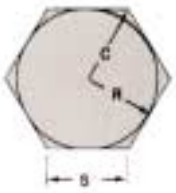
# FORMULAS FOR DETERMINING GEOMETRIC AREAS AND VOLUMES

### Hexagon



C = S = 1.155R

Area = $2.598S^2$

= $3.464R^2$

### Circle

**A** = area C = circumference.

$A = \pi r^2 = \frac{\pi d^2}{4}$

$C = 2\pi r = \pi D$

### Circular Sector

$A$ = area; $l$ = length of arc;

$\propto$ = angle, in degrees.

$l = \frac{r \times \propto \times 3.1416}{180}$

$A = \frac{1}{2} rl$

$\propto = \frac{57.296\ l}{r}$

### Parallelogram

$A$ = area.

$A = ab$

Note that dimension $a$ is measured at right angles to line $b$.

### Regular Polygon

$A$ = area $n$ = number of sides.

$\alpha = 360° \div n$ $\beta = 180° - \alpha$

$A = \frac{nsr}{2} = \frac{ns}{2}\sqrt{R^2 - \frac{s^2}{4}}$;

$R = \sqrt{r^2 + \frac{s^2}{4}}$; $r = \sqrt{R^2 - \frac{s^2}{4}}$;

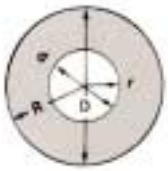
$s = 2\sqrt{R^2 - r^2}$

### Trapezoid

$A$ = area.

$A = \frac{(a + b)h}{2}$

### Circular Ring



$A$ = area

$A = \pi (R^2 - r^2)$

$= 0.7854 (D^2 - d^2)$

### Rectangle or Square

Area = L x W

### Cylinder

Area = $2\pi R (R + H)$

Volume = $\pi R^2 H$

### Elipse

$a$ = major axis; $b$ = minor axis.

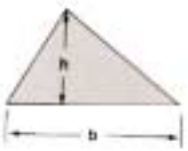
$A = \frac{\pi ab}{4}$

### Cone

Area = $\pi R\sqrt{(R^2 + H^2)}$

Volume = $\frac{\pi R^2 H}{3}$

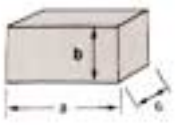
### Triangle



$A$ = area.

$A = \frac{bh}{2}$

### Square Prism



$V$ = volume.

$A$ = area of surface.

$V = abc$

$A = 2ab + 2ac + 2bc$