

## MAT 1015 Formulas

### Geometry:

Perimeter:

$$\text{Rectangle: } 2 \cdot L + 2 \cdot W$$

$$\text{Square: } 4 \cdot \text{side}$$

$$\text{Circle: } 2 \cdot \pi \cdot r$$

Area:

$$\text{Rectangle/Parallelogram: } L \cdot W$$

$$\text{Square: } \text{side}^2$$

$$\text{Circle: } \pi \cdot r^2$$

$$\text{Triangle: } \frac{1}{2} L \cdot W$$

$$\text{Trapezoid: } \frac{(B+b)}{2} \cdot H$$

Volume:

$$\text{Rectangular Solid: } L \cdot W \cdot H$$

$$\text{Right Circular Cylinder: } \pi \cdot r^2 \cdot h$$

$$\text{Pyramid: } \frac{1}{3} L \cdot W \cdot H$$

$$\text{Cone: } \frac{1}{3} \pi \cdot r^2 \cdot h$$

$$\text{Sphere: } \frac{4}{3} \pi \cdot r^3$$

Surface Area:

$$\text{Rectangular Solid: } 2 \cdot L \cdot W + 2 \cdot W \cdot H + 2 \cdot L \cdot H$$

$$\text{Right Circular Cylinder: } \text{Top/Bottom} = \pi \cdot r^2; \quad \text{Side} = 2 \cdot \pi \cdot r \cdot h$$

Below, "S" is the slant height.

$$\text{Pyramid: } \text{Bottom} = L \cdot W; \quad \text{Side} = \frac{1}{2} L \cdot S \text{ or } \frac{1}{2} W \cdot S$$

$$\text{Cone: } \text{Bottom} = \pi \cdot r^2; \quad \text{Side} = \pi \cdot r \cdot S$$

$$\text{Sphere: } 4 \cdot \pi \cdot r^2$$

### Trigonometry:

$$\text{Pythagorean Theorem: } a^2 + b^2 = c^2$$

$$180^\circ = \pi \text{ radians}$$

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{opposite}}{\text{adjacent}}$$

$$\csc A = \frac{1}{\sin A}$$

$$\sec A = \frac{1}{\cos A}$$

$$\cot A = \frac{1}{\tan A}$$

$$\text{Law of Sines: } \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

$$\text{Law of Cosines: } c^2 = a^2 + b^2 - 2 \cdot a \cdot b \cdot \cos C$$

$$\text{Arc Length} = \theta \cdot \text{radius}$$