

# WNCP Grade 10 Mathematics: Formula Sheet

## Pythagorean Theorem

$a^2 + b^2 = c^2$ , where  $c$  is the length of the hypotenuse

## Linear Relations

$$\text{Slope: } m = \frac{y_2 - y_1}{x_2 - x_1}$$

## Trigonometry

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

**Area, Surface Area, Volume:** for ALL calculations on the test using  $\pi$ , *always use*

$\pi = 3.14$
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Circumference and Area of a **circle** with radius  $r$

$$C = 2\pi r \qquad A = \pi r^2$$

Area of a **triangle** with base  $b$  and height  $h$ :

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

Volume of **Prism**:

Volume = area of base x height of the prism

Volume of **Pyramid**:

Volume =  $\frac{1}{3}$  x (the volume of the enclosing prism)

Volume of **Cylinder** with height  $h$  and radius  $r$ :

$$V = \pi r^2 h$$

Volume of **Sphere** with radius  $r$ :

$$SA = \frac{4}{3}\pi r^3$$

Surface Area of **Cylinder** with height  $h$  and radius  $r$ :

$$SA = 2\pi r h + 2\pi r^2$$

Surface Area of a **Cone** with radius  $r$  and slant height  $s$ :

$$SA = \pi r s + \pi r^2$$

Surface Area of **Sphere** with radius  $r$ :

$$SA = 4\pi r^2$$