

Ontario Grade 10 Academic and Applied Math: Formula Sheet

Pythagorean Theorem

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

Linear Relations

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

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Trigonometry

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

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

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

Sine Law

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Cosine Law

$$a^2 = b^2 + c^2 - 2bc \cos(A)$$

Area and Volume: for ALL calculations on the test using π , *always use* $\pi = 3.14$

Circumference and Area of a **circle** with radius r

$$C = 2\pi r$$

$$A = \pi r^2$$

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 = $\frac{1}{3} \times$ (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 :

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