

Mathematics 10C

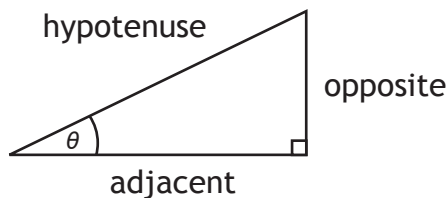
Measurement

Conversion Table

This table contains a list of equivalent measurements.

Unit	Imperial Conversions	Metric Conversions
inch (in. or ")		1 in. = 2.54 cm
foot (ft. or ')	1 ft. = 12 in.	1 ft. = 30.48 cm
yard (yd.)	1 yd. = 3 ft. 1 yd. = 36 in.	1 yd. = 91.44 cm 1 yd. = 0.9144 m
mile (mi.)	1 mi. = 1760 yd. 1 mi. = 5280 ft. 1 mi. = 63 360 in.	1 mi. = 1.609 km 1 mi. = 1609 m 1 mi. = 160 900 cm

Trigonometry

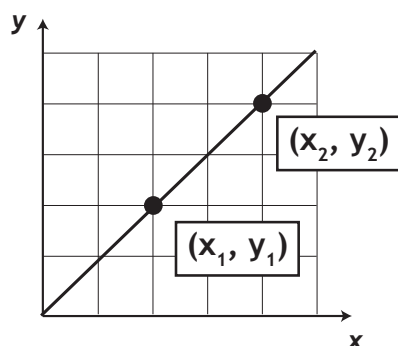


Pythagorean Theorem: $a^2 + b^2 = c^2$ (right triangles only)

Trigonometric Ratios:

$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}} \quad \cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}} \quad \tan\theta = \frac{\text{opposite}}{\text{adjacent}}$$

Linear Functions



Slope of a Line:

$$m = \frac{\text{rise}}{\text{run}}$$

or

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

Slope-Intercept Form: $y = mx + b$

Slope-Point Form: $y - y_1 = m(x - x_1)$

General Form: $Ax + By + C = 0$

Parallel Lines: $m_{\parallel} = m_{\text{original}}$

Perpendicular Lines: $m_{\perp} = -\frac{1}{m_{\text{original}}}$

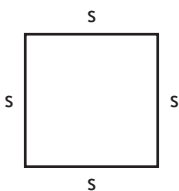
Surface Area and Volume

2-D Shapes

Square

$$P = 4s$$

$$A = s^2$$

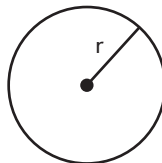


Circle

$$C = 2\pi r$$

or $C = \pi d$

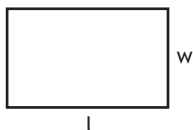
$$A = \pi r^2$$



Rectangle

$$P = 2l + 2w$$

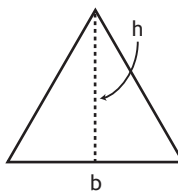
$$A = lw$$



Triangle

$$P = s_1 + s_2 + s_3$$

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

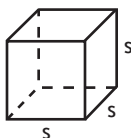


3-D Objects

Cube

$$SA = 6s^2$$

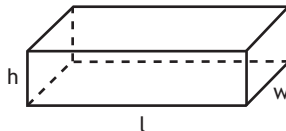
$$V = s^3$$



Rectangular Prism

$$SA = 2lw + 2wh + 2lh$$

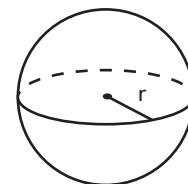
$$V = lwh$$



Sphere

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

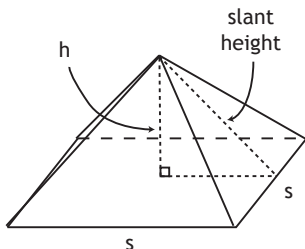
$$V = \frac{4}{3}\pi r^3$$



Square Pyramid

$$SA = A_{\text{base}} + 4A_{\text{side}}$$

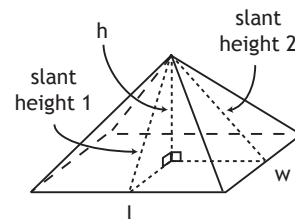
$$V = \frac{1}{3}lwh$$



Rectangular Pyramid

$$SA = A_{\text{base}} + 2A_{\text{side 1}} + 2A_{\text{side 2}}$$

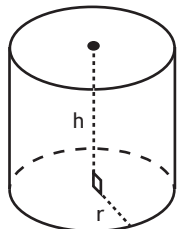
$$V = \frac{1}{3}lwh$$



Right Cylinder

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

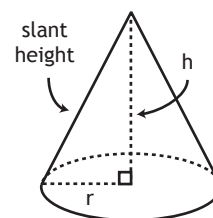
$$V = \pi r^2 h$$



Right Cone

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

$$V = \frac{1}{3}\pi r^2 h$$



Exponents & Radicals

$$a^m \times a^n = a^{m+n}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

$$(a^m)^n = a^{mn}$$

$$(a^m b^n)^p = a^{mp} b^{np}$$

$$\left(\frac{a^m}{b^n}\right)^p = \frac{a^{mp}}{b^{np}}$$

$$a^0 = 1$$

$$a^{-m} = \frac{1}{a^m}$$

$$a^{\frac{m}{n}} = \sqrt[n]{a^m} \text{ OR } (\sqrt[n]{a})^m$$