

MAP4C - FORMULA SHEET

Units of length

Metric conversions

1 cm = 10 mm 1 mm = 0.1 cm
 1 m = 100 cm 1 cm = 0.01 m
 1 km = 1000 m 1 m = 0.001 km

Imperial conversions

1 foot = 12 inches
 1 yard = 3 feet 1 yard = 36 inches
 1 mile = 1760 yards 1 mile = 5280 feet

Imperial to metric

1 inch = 2.54 cm
 1 foot = 30.48 cm
 1 foot = 0.3048 m
 1 mile \doteq 1.6093 km

Metric to imperial

1 cm \doteq 0.3937 inch
 1 m \doteq 39.37 inches
 1 m \doteq 3.2808 feet
 1 km \doteq 0.6214 mile

Imperial to metric

1 fluid ounce \doteq 28.4131 mL
 1 pint \doteq 0.5683 L
 1 quart \doteq 1.1365 L
 1 gallon \doteq 4.5461 L
 1 gallon \doteq 4546.1 cm³
 1 U.S. gallon \doteq 3.785 L

TRIGONOMETRY

Pythagorean Theorem: $a^2 + b^2 = c^2$

SOH CAH TOA

Sine Law:

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

Cosine Law:

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

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

FINANCE FORMULAS

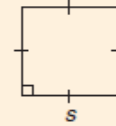
$$A = P(1 + i)^n$$

$$A = \frac{R[(1 + i)^n - 1]}{i}$$

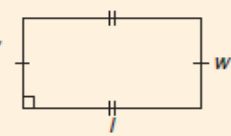
$$PV = \frac{R[1 - (1 + i)^{-n}]}{i}$$

Area and Perimeter (Circumference)

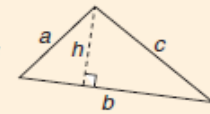
Square: $A = s^2$
 $P = 4s$



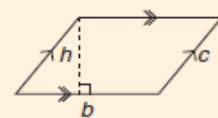
Rectangle: $A = \ell w$
 $P = 2\ell + 2w$



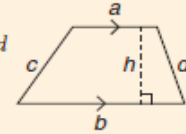
Triangle: $A = \frac{1}{2}bh$
 $P = a + b + c$



Parallelogram: $A = bh$
 $P = 2b + 2c$



Trapezoid: $A = \frac{1}{2}(a + b)h$
 $P = a + b + c + d$



Circle: $A = \pi r^2$
 $C = 2\pi r$



Geometric Figure	Surface Area	Volume
Cylinder 	$A_{\text{base}} = \pi r^2$ $A_{\text{lateral surface}} = 2\pi r h$ $A_{\text{total}} = 2A_{\text{base}} + A_{\text{lateral surface}}$ $= 2\pi r^2 + 2\pi r h$	$V = (A_{\text{base}})(\text{height})$ $V = \pi r^2 h$
Sphere 	$A = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$ or $V = \frac{4\pi r^3}{3}$
Cone 	$A_{\text{lateral surface}} = \pi r s$ $A_{\text{base}} = \pi r^2$ $A_{\text{total}} = A_{\text{lateral surface}} + A_{\text{base}}$ $= \pi r s + \pi r^2$	$V = \frac{(A_{\text{base}})(\text{height})}{3}$ $V = \frac{1}{3}\pi r^2 h$ or $V = \frac{\pi r^2 h}{3}$
Square-based pyramid 	$A_{\text{triangle}} = \frac{1}{2}bs$ $A_{\text{base}} = b^2$ $A_{\text{total}} = 4A_{\text{triangle}} + A_{\text{base}}$ $= 2bs + b^2$	$V = \frac{(A_{\text{base}})(\text{height})}{3}$ $V = \frac{1}{3}b^2 h$ or $V = \frac{b^2 h}{3}$
Rectangular prism 	$A = 2(wh + lw + lh)$	$V = (A_{\text{base}})(\text{height})$ $V = lwh$
Triangular prism 	$A_{\text{base}} = \frac{1}{2}bl$ $A_{\text{rectangles}} = ah + bh + ch$ $A_{\text{total}} = A_{\text{rectangles}} + 2A_{\text{base}}$ $= ah + bh + ch + bl$	$V = (A_{\text{base}})(\text{height})$ $V = \frac{1}{2}blh$ or $V = \frac{blh}{2}$