Formula Sheet

Formulae that are given on the formula sheet in the exam (or in unit assessments)

Topic	Formula(e)
Volume of a Pyramid	$V = \dfrac{1}{3}Ah$
Volume of a Sphere and Cone	Sphere: $V = \dfrac{4}{3}\pi r^3$ Cone: $V = \dfrac{1}{3}\pi r^2 h$
The Quadratic Formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Area of a Triangle	$A = \dfrac{1}{2}ab\sin C$
Sine rule	$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
Cosine rule	$a^2 = b^2 + c^2 - 2bc\cos A$ or $\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$
Standard deviation	$\sqrt{\dfrac{\sum(x-\bar{x})^2}{n-1}}$ or $\sqrt{\dfrac{\sum x^2 - (\sum x)^2/n}{n-1}}$

Formulae that are <u>not</u> given in the exam (or in unit assessments)

Topic	Formula(e)
Completing the Square (quicker method)	$p = \dfrac{b}{2}$ $\qquad$ $q = -p^2 + c$
Gradient	$m = \dfrac{y_2 - y_1}{x_2 - x_1}$
Arc length and Sector Area	Arc length: $\dfrac{\text{Angle}}{360}\pi d$ $\qquad$ Sector Area: $\dfrac{\text{Angle}}{360}\pi r^2$
Volume of a prism and cylinder	Prism: $V = Ah$ $\qquad$ Cylinder: $V = \pi r^2 h$
Straight line	$y - b = m(x - a)$
Discriminant	$b^2 - 4ac$
Pythagoras' Theorem	$a^2 + b^2 = c^2$
Right-angled Trigonometry	$\sin x^\circ = \dfrac{\text{Opp}}{\text{Hyp}}$ $\quad$ $\cos x^\circ = \dfrac{\text{Adj}}{\text{Hyp}}$ $\quad$ $\tan x^\circ = \dfrac{\text{Opp}}{\text{Adj}}$
Trigonometry	$\tan x = \dfrac{\sin x}{\cos x}$ $\qquad$ $\sin^2 x + \cos^2 x = 1$
Magnitude of a vector	$\lvert \mathbf{a} \rvert = \sqrt{a_1^2 + a_2^2}$ $\qquad$ $\lvert \mathbf{a} \rvert = \sqrt{a_1^2 + a_2^2 + a_3^2}$
Percentage increase and decrease	$\dfrac{\text{increase (or decrease)}}{\text{original amount}} \times 100$
Semi Interquartile Range (SIQR)	$\dfrac{\text{upper quartile} - \text{lower quartile}}{2}$