Foundation Mathematics

2024 Formula Sheet

You may keep this Formula Sheet.

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

VICTORIA State Government

Algebra, number and structure

distributive law	$a(b+c)=ab+ac$
square roots and squares	$a=b^2 \Rightarrow b=\sqrt{a}$
ratios	$a:b=c:d \rightleftharpoons \frac{a}{b}=\frac{c}{d}$
percentage error	$\frac{\lvert\text{measured} - \text{actual}\rvert}{\text{actual}} \times 100\%$
a varies directly with b, where k is a constant	$a = kb$
a varies inversely with b, where k is a constant	$a=\frac{k}{b}$

Data analysis, probability and statistics

measures of centre	mean	$\frac{\text{sum of data values}}{\text{number of data values}}$
	median position in an ordered set of sample size, n	$\frac{n+1}{2}$
measures of spread	range	max − min
	interquartile range	IQR = $Q_3 - Q_1$
percentage relative frequency formula		$\frac{\text{frequency of an event occurring}}{\text{total number of trials}} \times 100\%$
long term data trends		experimental probability ≈ theoretical probability
probability for a large number of trials of event A		$\Pr(A) \approx \frac{\text{number of times event } A \text{ occurs}}{\text{total number of trials}}$

Space and measurement

Pythagoras' theorem	$c^2 = a^2 + b^2$
area of a triangle	$\frac{1}{2}bh$
area of a trapezium	$\frac{1}{2}(a+b)h$
Heron's formula	$\sqrt{s(s-a)(s-b)(s-c)}$, where $s = \frac{a+b+c}{2}$
circumference of a circle	$\pi d = 2\pi r$
length of an arc	$\pi d \times \frac{\theta^\circ}{360}$
area of a circle	πr^2
area of a sector	$\pi r^2 \times \frac{\theta^\circ}{360}$
volume of a sphere	$\frac{4}{3}\pi r^3$
surface area of a sphere	$4\pi r^2$
volume of a cone	$\frac{1}{3}\pi r^2 h$
volume of a prism	area of base × height
volume of a pyramid	$\frac{1}{3} \times$ area of base $\times$ height

Financial and consumer mathematics

simple interest	$I = \frac{\Pr t}{100}$
compound interest	$A = PR^n$, where $R = 1 + \frac{r}{100}$
GST	10%
Medicare levy	2%
percentage increase	$\frac{\text{final} - \text{initial}}{\text{initial}} \times 100\%$
percentage decrease	$\frac{\text{initial} - \text{final}}{\text{initial}} \times 100\%$
profit	income − expenditure

End of Formula Sheet