Reference Sheet for Use in the Mathematics Standard 1 and Mathematics Standard 2 HSC Examinations

Purpose

The Reference Sheet is designed as a memory aid. It is provided in order to make it unnecessary for candidates to memorise a range of formulae from the Mathematics Standard 1 and Mathematics Standard 2 HSC course content in preparation for the HSC examinations.

Development principles

1. The formulae on the Reference Sheet are from the Stage 6 Mathematics Standard 1 and Standard 2 Year 11 and Year 12 courses, are arranged according to the topic in which they appear and labelled when appropriate.

   As the Reference Sheet is designed as a memory aid only, terms within the formulae provided are not defined.

2. Formulae introduced in the *Mathematics K–10 Syllabus* (2012) may be included based on considerations such as the complexity of the formula and frequency of use. For example $l = \frac{\theta}{360} \times 2\pi r$.

3. In general, a formula that is a case of, or is readily obtained from, another included formula, is not included. For example $PV = \frac{FV}{(1+r)^n}$ is not included but $\cos C = \frac{a^2+b^2-c^2}{2ab}$ is included.

4. A formula that essentially represents a statement or expression of a fundamental syllabus concept or definition is not included. For example $D = ST$.

5. Any additional information identified as necessary may be included in the examination paper. For example Fried's Formula and BAC formulae.

Decisions regarding specific formulae

Syllabus	Formulae	Rationale
Standard Advanced	$V = \pi r^2 h$	Not included Principle 2 Stage 4
Standard Advanced	$y = mx + c$	Not included Principle 2 Stage 5.2
Standard Advanced	$A = \frac{h}{2}(x + y)$ $A = 2\pi r^2 + 2\pi rh$ $l = \frac{\theta}{360} \times 2\pi r$ $A = \frac{\theta}{360} \times \pi r^2$	Included Principle 2 Stage 4
Standard Advanced	$PV = \frac{FV}{(1 + r)^n}$	Not included Principle 3 Stage 6
Standard Advanced	$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$	Included Principle 3 Stage 5.3
Standard Advanced	$I = PRN$	Not included Principle 4 Stage 5.1
Standard Advanced	$P(\text{event}) = \frac{\text{number of favourable outcomes}}{\text{total number of outcomes}}$	Not included Principle 4 Stage 4
Standard Advanced	$IQR = Q_3 - Q_1$	Not included Principle 4 Stage 4
Standard Advanced	$m = \frac{y_2 - y_1}{x_2 - x_1}$	Not included Principle 4 Stage 5.1
Standard	$BAC_{\text{male}} = \frac{10N - 7.5H}{6.8M}$ $BAC_{\text{female}} = \frac{10N - 7.5H}{5.5M}$	Not included Principle 5 Stage 6

Syllabus	Formulae	Rationale
	$\text{time} = \frac{BAC}{0.015}$	

Additional Note

The trapezoidal rule in the Mathematics Advanced syllabus is expressed in a form that aids multiple applications but in the Mathematics Standard syllabus, it is expressed in terms of one application. As a result, the area of a trapezium formula has been included in both the Mathematics Standard and Mathematics Advanced, Mathematics Extension 1 and Mathematics Extension 2 reference sheets.