



Level 3 Certificate MATHEMATICAL STUDIES

Formulae sheet

Information

This formulae sheet should be issued to all candidates for use with all Mathematical Studies examinations.

These formulae are not required to be learnt. A clean copy of this formulae sheet will be issued to you in the examination.

Volume and surface area

Shape	Volume	Surface area
Cone	$V = \frac{1}{3}\pi r^2 h$	$A = \pi r l + \pi r^2$
Sphere	$V = \frac{4}{3}\pi r^3$	$A = 4\pi r^2$
Pyramid	$V = \frac{1}{3} \text{base} \times h$	

Financial calculation – AER

The annual equivalent interest rate (AER), r , is given by

$$r = \left(1 + \frac{i}{n}\right)^n - 1$$

where i is the nominal interest rate, and n the number of compounding periods per year.

Note: the values of i and r should be expressed as decimals.

Financial calculation – APR

The annual percentage interest rate (APR) is given by

$$C = \sum_{k=1}^m \left(\frac{A_k}{(1+i)^{t_k}} \right)$$

where $\pounds C$ is the amount of the loan, m is the number of repayments, i is the APR expressed as a decimal, $\pounds A_k$ is the amount of the k th repayment, t_k is the interval in years between the start of the loan and the k th repayment.

It may be assumed that there are no arrangement or exit fees.

END OF FORMULAE SHEET

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