

# Level 3 Certificate MATHEMATICAL STUDIES

# Formulae Sheet

### Information

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

G/TI/Jun21/E3 1350

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 £C is the amount of the loan, m is the number of repayments, i is the APR expressed as a decimal, £ $A_k$  is the amount of the kth repayment,  $t_k$  is the interval in years between the start of the loan and the kth repayment.

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

# **END OF FORMULAE SHEET**

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