



---

# 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

### Copyright information

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from [www.aqa.org.uk](http://www.aqa.org.uk) after the live examination series.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, AQA, Stag Hill House, Guildford, GU2 7XJ.

Copyright © 2018 AQA and its licensors. All rights reserved.