## AQA

## 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 | $V=\frac{1}{3}$ 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 $k$ 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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