Government of **Western Australia**
**School Curriculum and Standards Authority**

# MATHEMATICS APPLICATIONS
# ATAR COURSE

# FORMULA SHEET

# 2026



This document is valid for teaching and examining until 31 December 2026.

## Statistics

| Bivariate data | |
|---|---|
| Residual value | observed value – predicted value = $y - \hat{y}$ |
| Least-squares line | $\hat{y} = a + bx$ where $\hat{y}$ is the response variable and $x$ is the explanatory variable<br><br>or<br><br>$\hat{y} = a + bt$ where $\hat{y}$ is the response variable and $t$ is time (the explanatory variable) |
| Periodic time series | |
| Deseasonalised value = $\frac{\text{Actual value}}{\text{Seasonal index}}$ | |

## Growth and decay in sequences

| | |
|---|---|
| Arithmetic sequence | $T_1 = a, \quad T_n = a + (n-1)d \qquad d = T_{n+1} - T_n$ |
| Geometric sequence | $T_1 = a, \quad T_n = ar^{(n-1)} \qquad r = \frac{T_{n+1}}{T_n}$ |
| First-order linear recurrence relation | $T_1 = a, \quad T_{n+1} = bT_n + c$ for $n \geq 1$ |

## Graphs, networks and decision mathematics

| | |
|---|---|
| Euler's formula | $v + f - e = 2$ |

## Loans, investments and annuities

| | |
|---|---|
| Simple interest | $I = Prt$ |
| Compound interest | $A = P(1+r)^t$ compounded annually<br>$A = P\left(1 + \frac{r}{n}\right)^{nt}$ compounded $n$ times a year |
| Effective annual rate of interest | $i_{effective} = \left(1 + \frac{i}{n}\right)^n - 1$ |

*Note: Any additional formulas identified by the examination panel as necessary will be included in the body of the particular question.*

*Published by the School Curriculum and Standards Authority of Western Australia*
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*CANNINGTON WA 6107*