

Miscellaneous topics

For help with absolute values $|x|$, including sketching graphs like $y = |x - 2|$, and solving equations of the form $|x + 3| = 6$.

[Absolute values \(pdf, 83KB\)](#)

For help working with powers, indices and exponents such as $b^3, b^{\frac{1}{2}}, b^{-2}$ and the rules in working with $b^n \times b^m, \frac{b^n}{b^m}, (ab)^n, \left(\frac{a}{b}\right)^n$.

[Exponents \(pdf, 117KB\)](#)

For an introduction to the method of proof by mathematical induction with several kinds of worked examples.

[Mathematical induction \(pdf, 153KB\)](#)

For help with summation (or sigma) notation such as $\sum_{i=1}^n x_i$ with applications to statistical formulae for μ and σ^2 .

[Sigma notation \(pdf, 83KB\)](#)

For algebraic and graphical methods of solving inequalities such as $3 - 2x \geq 1, \frac{1}{x-4} \leq 1, x^2 - 4x + 3 < 0$ and $|2x - 6| > 2x$.

[Solving inequalities \(pdf, 125KB\)](#)

For help with solving two equations with two unknowns (or variables) using both the substitution and elimination methods.

[Solving simultaneous equations \(pdf, 77KB\)](#)

For an overview of trig. identities such as $\sin^2 \theta + \cos^2 \theta = 1$, sum and differences $\cos(A \pm B)$ or $\sin(A \pm B)$, double angle $\cos(2A)$ and $\sin(2A)$, as well as identities involving $\sec \theta, \csc \theta, \cot \theta$, and some applications to integration.

[Trigonometric identities \(pdf, 668KB\)](#)

For help with finding roots and zeros of quadratic $ax^2 + bx + c$ and cubic $ax^3 + bx^2 + cx + d$ polynomials, and factorisation using long division, the Remainder Theorem, and the Factor Theorem.

[Polynomials \(pdf, 110KB\)](#)