

Algebraic Methods Revision

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(a)	(b)	(c)
Simplify $\frac{4x^2 - 9}{2x^2 - x - 3}$ $\frac{2x + 3}{x + 1}$	Express $\frac{x + 3}{(2x + 1)(x - 4)} - \frac{5}{8x^2 - 2}$ as a single fraction in its simplest form $\frac{4x^2 + 9x - 2}{2(2x + 1)(x - 4)(2x - 1)}$	Write $2 - \frac{3}{x + 2} + \frac{x - 5}{x^2 + x - 2}$ as a single fraction in its simplest form $\frac{2(x^2 - 3)}{(x + 2)(x - 1)}$
(d)	(e)	(f)
Given that $(x + 2)$ and $(x - 1)$ are factors of $4x^3 + ax^2 - bx - 6$, find the values of a and b . $a = 7, b = 5$	$f(x) = -5x^3 + 17x^2 + x - 21$ Write $f(x)$ in the form $(x - 3)g(x)$ where $g(x)$ is a quadratic expression to be found. $f(x) = (x - 3)(-5x^2 + 2x + 7)$	$f(x) = 6x^3 - 35x^2 - 8x + 12$ Given that $(x - 6)$ is a factor of $f(x)$, find all the solutions of $f(x) = 0$ $x = 6, x = \frac{1}{2}, x = -\frac{2}{3}$
(g)	(h)	(i)
Write $\frac{18}{(x - 4)(2x + 1)}$ as partial fractions. $\frac{2}{x - 4} - \frac{4}{2x + 1}$	$\frac{x^2 + x + 8}{(x + 1)(x - 3)} \equiv A + \frac{B}{x + 1} + \frac{C}{x - 3}$ Find the values of A, B and C . $A = 1, B = -2, C = 5$	Express in partial fractions $\frac{2x^2 + 27x + 36}{(2x - 3)(x + 3)^2} = \frac{A}{2x - 3} + \frac{B}{x + 3} + \frac{C}{(x + 3)^2}$ $\frac{4}{2x - 3} - \frac{1}{x + 3} + \frac{3}{(x + 3)^2}$