

## Algebraic Methods Revision

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