



Air maths tuition

Interact, engage and perform

Partial Fractions - What are they?

$$\frac{3}{x+2} - \frac{4}{2x-1} \equiv \frac{3(2x-1) - 4(x+2)}{(x+2)(2x-1)}$$

$$\equiv \frac{2x-11}{(x+2)(2x-1)}$$

↑ ↑ linear factors have the form $ax+b$

$$\frac{4}{x-2} + \frac{2}{(x-2)^2} + \frac{3}{2x+5} \equiv \frac{4(x-2)(2x+5) + 2(2x+5) + 3(x-2)^2}{(x-2)^2(2x+5)}$$

$$\equiv \frac{11x^2 - 4x - 18}{(x-2)^2(2x+5)}$$

repeated linear factor → ↑ ← linear factor

Expressing a fraction in partial fractions

$$\frac{3x+2}{(x+3)(5x-1)} \equiv \frac{A}{x+3} + \frac{B}{5x-1}$$

$$\frac{2x+1}{(3x-2)^2} \equiv \frac{A}{3x-2} + \frac{B}{(3x-2)^2}$$

$$\frac{5x-1}{(x-2)(2x+1)^2} \equiv \frac{A}{x-2} + \frac{B}{2x+1} + \frac{C}{(2x+1)^2}$$

Where A, B and C are constants to be found

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