

### Further Pure 1 Inequalities

Solve the inequality

$$\frac{x^2 + 3x - 12}{x - 1} < 2x - 3$$

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$$\frac{x^2 + 3x - 12}{x - 1} < 2x - 3 \Rightarrow$$

$$(x - 1)(x^2 + 3x - 12) < (x - 1)^2(2x - 3) \Rightarrow$$

$$(x - 1)(x^2 + 3x - 12) - (x - 1)^2(2x - 3) < 0 \Rightarrow$$

$$(x - 1)(x^2 + 3x - 12 - (x - 1)(2x - 3)) < 0 \Rightarrow$$

$$(x - 1)(x^2 + 3x - 12 - (2x^2 - 5x + 3)) < 0 \Rightarrow$$

$$(x - 1)(-x^2 + 8x - 15) < 0 \Rightarrow$$

$$(x - 1)(x - 3)(5 - x) < 0 \Rightarrow$$

$$1 < x < 3 \text{ or } x > 5$$

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