### 8th November

**Show**

\[ 2x^3 + 3x^2 - 4x + 7 = 0 \]

has a solution between \(-3\) and \(-2\)

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A particle travels 140m in 6.4 seconds. Both measurements are given to 2 significant figures.

Find the upper bound for the speed of the particle

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The triangle below has an area of \(2\sqrt{6}\)cm\(^2\)

Find the height of the triangle, \(x\).

Give your answer as a simplified surd.

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Work out the rate at which the pulse is increasing at four minutes.

Include units.

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Work out the rate at which the pulse is decreasing at six minutes.

Include units.