# Advanced Higher Maths
# SQA 2016 Exemplar
# Question 9

Prove by contradiction, that if $x$ is irrational then $\sqrt{x}$ is irrational. **3**

Method:

Assume that $x$ is irrational but $\sqrt{x}$ is rational.
Express $\sqrt{x}$ as a fully simplified fraction.
Square both sides, to show that $x$ must be rational.
This contradicts $x$ being irrational and concludes the proof.