



Air maths tuition

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Surds | Past Exam Question | C1 Edexcel January 2011 Q3

Simplify $\frac{5-2\sqrt{3}}{\sqrt{3}-1}$ giving your answer in the form $p+q\sqrt{3}$, where p and q

are rational numbers.

$$\frac{5-2\sqrt{3}}{\sqrt{3}-1} = \frac{(5-2\sqrt{3})}{(\sqrt{3}-1)} \times \frac{(\sqrt{3}+1)}{(\sqrt{3}+1)}$$

$$= \frac{5\sqrt{3} + 5 - 6 - 2\sqrt{3}}{3 + \sqrt{3} - \sqrt{3} - 1}$$

$$= \frac{-1 + 3\sqrt{3}}{2}$$

$$= -\frac{1}{2} + \frac{3}{2}\sqrt{3}$$

$$\equiv p + q\sqrt{3} \quad \text{where } p = -\frac{1}{2} \text{ and } q = \frac{3}{2}$$

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