



Air maths tuition

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Surds | Past Exam Question | C1 OCR January 2012 Q1

Express $\frac{15+\sqrt{3}}{3-\sqrt{3}}$ in the form $a+b\sqrt{3}$, where a and b are integers.

$$\frac{15+\sqrt{3}}{3-\sqrt{3}} = \frac{15+\sqrt{3}}{3-\sqrt{3}} \times \frac{3+\sqrt{3}}{3+\sqrt{3}}$$

$$= \frac{45+15\sqrt{3}+3\sqrt{3}+3}{9+3\sqrt{3}-3\sqrt{3}-3}$$

$$= \frac{48+18\sqrt{3}}{6}$$

$$= \frac{6(8+3\sqrt{3})}{6}$$

$$= 8+3\sqrt{3}$$



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