

Surds

- 1 Write $\sqrt{48}$ in the form $k\sqrt{3}$, where k is an integer.
- 2 Write $\sqrt{50}$ in the form $k\sqrt{2}$, where k is an integer.
- 3 Write $5\sqrt{27}$ in the form $k\sqrt{3}$, where k is an integer.
- 4 Write $7\sqrt{20}$ in the form $k\sqrt{5}$, where k is an integer.
- 5 Expand and Simplify $(2 + \sqrt{3})(2 - \sqrt{3})$
- 6 Write $(3 + \sqrt{5})^2$ in the form $a + b\sqrt{5}$, where a and b are integers.
- 7 Expand and Simplify $(2 + \sqrt{5})(1 - \sqrt{5})$
- 8 Write $(3 - \sqrt{2})^2$ in the form $a + b\sqrt{2}$, where a and b are integers.
- 9 Expand and Simplify $(2 + \sqrt{3})^2 - (2 - \sqrt{3})^2$
- 10 Rationalise the denominator $\frac{6}{\sqrt{3}}$
- 11 Rationalise the denominator $\frac{x}{\sqrt{x}}$

12 Rationalise the denominator $\frac{1 + \sqrt{5}}{\sqrt{2}}$

13 Simplify $\frac{(3 + \sqrt{6})}{\sqrt{3}}$

14 Simplify fully $\frac{(4 + 2\sqrt{3})(4 - 2\sqrt{3})}{\sqrt{11}}$

15 Show that $\frac{5 + 2\sqrt{3}}{2 + \sqrt{3}}$ can be written as $4 - \sqrt{3}$

16 Show that $\frac{3\sqrt{3} + 3}{3 + \sqrt{3}}$ can be written as $\sqrt{3}$

17 Show that $\frac{1}{\frac{1}{\sqrt{2}} + \sqrt{2}}$ can be written as $\frac{\sqrt{2}}{3}$

18 Show that $\frac{2}{\frac{1}{\sqrt{3}} + 1}$ can be written as $3 - \sqrt{3}$

19 Simplify fully $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$

20 Simplify fully $(2a + \sqrt{b})^2$