

$$\frac{\sqrt{x} + \sqrt{y}}{\sqrt{x} - \sqrt{y}}$$

$$(\sqrt{x} + \sqrt{y})(\sqrt{x} + \sqrt{y}) = \sqrt{x} + \sqrt{y} \times \sqrt{x} + \sqrt{y} = \sqrt{x} + \sqrt{xy} + \sqrt{xy} + \sqrt{y} = \sqrt{x} + 2\sqrt{xy} + \sqrt{y}$$

rationalising the denominator

$$(a + b\sqrt{c})(a - b\sqrt{c}) = a^2 - b^2c$$

$$\frac{\sqrt{4} - \sqrt{3}}{\sqrt{4} + \sqrt{3}} = \frac{\sqrt{4} - \sqrt{3}}{\sqrt{4} + \sqrt{3}} \times \frac{\sqrt{4} - \sqrt{3}}{\sqrt{4} - \sqrt{3}} = \frac{(\sqrt{4})^2 - (\sqrt{3})^2}{(\sqrt{4})^2 - (\sqrt{3})^2} = \frac{4 - 3}{4 - 3} = \frac{1}{1} = 1$$

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

Y always

$$\frac{\sqrt{a}}{\sqrt{b}} = \frac{\sqrt{a}}{\sqrt{b}} \times \frac{\sqrt{b}}{\sqrt{b}} = \frac{\sqrt{ab}}{b}$$

Y always

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

$$(\sqrt{2} + \sqrt{3})(\sqrt{2} + \sqrt{3}) = \sqrt{2} + \sqrt{3} \times \sqrt{2} + \sqrt{3} + \sqrt{3} = \sqrt{2} + \sqrt{6} + \sqrt{6} + \sqrt{3} = \sqrt{2} + 2\sqrt{6} + \sqrt{3}$$

no useful simplification

EXERCISES

