

SURDS 2008-10

3)

$$\begin{aligned} \frac{5-\sqrt{3}}{2+\sqrt{3}} &= \frac{5-\sqrt{3}}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} \\ &= \frac{10-2\sqrt{3}-5\sqrt{3}+3}{2^2-\sqrt{3}^2} \\ &= \frac{13-7\sqrt{3}}{4-3} = 13-7\sqrt{3} \end{aligned}$$


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$$\begin{aligned} 3) \quad &(\sqrt{7}+2)(\sqrt{7}-2) \\ &= 7+2\sqrt{7}-2\sqrt{7}-4 \\ &= 3 \end{aligned}$$


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$$1) a) \quad (3\sqrt{7})^2 = 3\sqrt{7} \times 3\sqrt{7} = 9 \times 7 = 63$$


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$$\begin{aligned} b) \quad &(8+\sqrt{5})(2-\sqrt{5}) \\ &= 16+2\sqrt{5}-8\sqrt{5}-5 = 11-6\sqrt{5} \end{aligned}$$


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$$\begin{aligned} 2) a) \quad &(7+\sqrt{5})(3-\sqrt{5}) = 21+3\sqrt{5}-7\sqrt{5}-5 \\ &= 16-4\sqrt{5} \end{aligned}$$


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$$\begin{aligned} b) \quad \frac{7+\sqrt{5}}{3+\sqrt{5}} &= \frac{7+\sqrt{5}}{3+\sqrt{5}} \times \frac{3-\sqrt{5}}{3-\sqrt{5}} = \frac{21+3\sqrt{5}-7\sqrt{5}-5}{3^2-\sqrt{5}^2} \\ &= \frac{16-4\sqrt{5}}{4} \\ &= 4-\sqrt{5} \end{aligned}$$


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1)  $\sqrt{75} - \sqrt{27}$   
 $= \sqrt{25 \times 3} - \sqrt{9 \times 3}$   
 $= 5\sqrt{3} - 3\sqrt{3}$   
 $= 2\sqrt{3}$

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