

Surds lesson 3

Tuesday, December 31, 2013
3:44 AM

$$5x + 6x = 11x$$

$$5x + 6y = 5x + 6y$$

$$5\sqrt{2} + 6\sqrt{2} = 11\sqrt{2}$$

$$7\sqrt{3} - 3\sqrt{3} = 4\sqrt{3}$$

$$20\sqrt{5} + 3\sqrt{5} - 10\sqrt{5} = 13\sqrt{5}$$

$$\begin{aligned} 3\sqrt{5} + 2\sqrt{45} &= 3\sqrt{5} + 2\sqrt{5 \times 9} \\ &= 3\sqrt{5} + 2 \times \sqrt{9}^2 \times \sqrt{5} \\ &= 3\sqrt{5} + 6\sqrt{5} \\ &= 9\sqrt{5} \end{aligned}$$

$$\begin{aligned} \text{Simplify } 4\sqrt{3} + 3\sqrt{12} &= 4\sqrt{3} + 3\sqrt{4 \times 3} \\ &= 4\sqrt{3} + 3 \times \sqrt{4}^2 \times \sqrt{3} \\ &= 4\sqrt{3} + 6\sqrt{3} \\ &= 10\sqrt{3} \end{aligned}$$

$$\begin{aligned} \text{Simplify } 5\sqrt{a^3} + 4\sqrt{b^4 a^3} \\ &= 5\sqrt{a^2 \times a} + 4\sqrt{b^4 \times a^2 \times a} \\ &= 5 \times \sqrt{a^2} \times \sqrt{a} + 4 \times \sqrt{b^4} \times \sqrt{a^2} \times \sqrt{a} \\ &= 5 \times a \times \sqrt{a} + 4 \times b^2 \times a \times \sqrt{a} \\ &= 5a\sqrt{a} + 4a^2 b^2 \sqrt{a} \\ &= a\sqrt{a} (5 + 4ab^2) \end{aligned}$$

$$\begin{aligned} \text{Simplify } \sqrt{48a^3} - 2\sqrt{b^4 a^3} \\ &= \sqrt{16 \times 3 \times a^2 \times a} - 2\sqrt{b^4 \times a^2 \times a} \\ &= \sqrt{16}^2 \times \sqrt{3} \times \sqrt{a^2} \times \sqrt{a} - 2 \times \sqrt{b^4} \times \sqrt{a^2} \times \sqrt{a} \\ &= 4 \times (\sqrt{3}) \times a \times (\sqrt{a}) - 2 \times b^2 \times a \times \sqrt{a} \\ &= 4a\sqrt{3a} - 2a^2 b^2 \sqrt{a} \\ &= 2a(2\sqrt{3a} - ab^2\sqrt{a}) \end{aligned}$$