

Surds Exam Question Answers

$$\begin{aligned} \textcircled{1} \quad \sqrt{50} \\ &= \sqrt{25} \times \sqrt{2} \\ &= 5\sqrt{2} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad \frac{\sqrt{72}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \quad \text{or} \quad \frac{\sqrt{72}}{\sqrt{3}} \\ &= \frac{\sqrt{216}}{3} \\ &= \frac{\sqrt{36} \sqrt{6}}{3} \\ &= \frac{6\sqrt{6}}{3} \\ &= 2\sqrt{6} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad \sqrt{48} - 3\sqrt{3} \\ &= \sqrt{16} \sqrt{3} - 3\sqrt{3} \\ &= 4\sqrt{3} - 3\sqrt{3} \\ &= \sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad \sqrt{32} - \sqrt{2} \\ &= \sqrt{16} \sqrt{2} - \sqrt{2} \\ &= 4\sqrt{2} - \sqrt{2} \\ &= 3\sqrt{2} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad \sqrt{72} - \sqrt{2} + \sqrt{50} \\ &= \sqrt{36} \sqrt{2} - \sqrt{2} + \sqrt{25} \sqrt{2} \\ &= 6\sqrt{2} - \sqrt{2} + 5\sqrt{2} \\ &= 0 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad \sqrt{32} + \sqrt{8} \\ &= \sqrt{4} \sqrt{8} + \sqrt{8} \\ &= 2\sqrt{8} + \sqrt{8} \\ &= 3\sqrt{8} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad \sqrt{2}(\sqrt{6} - \sqrt{2}) \\ &= \sqrt{12} - 2 \\ &= \sqrt{4} \sqrt{3} - 2 \\ &= 2\sqrt{3} - 2 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad f(x) = 3\sqrt{x} \\ f(12) &= 3\sqrt{12} \\ &= 3 \times \sqrt{4} \times \sqrt{3} \\ &= 3 \times 2 \times \sqrt{3} \\ &= 6\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad \frac{3}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} \\ &= \frac{3\sqrt{5}}{5} \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad \frac{\sqrt{3}}{\sqrt{24}} \times \frac{\sqrt{24}}{\sqrt{24}} \\ &= \frac{\sqrt{72}}{24} \\ &= \frac{\sqrt{36} \sqrt{2}}{24} \\ &= \frac{6\sqrt{2}}{24} \\ &= \frac{\sqrt{2}}{4} \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad f(x) = \frac{3}{\sqrt{x}} \\ f(2) &= \frac{3}{\sqrt{2}} \\ &= \frac{3}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \\ &= \frac{3\sqrt{2}}{2} \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad f(x) = 4^x \\ f\left(\frac{3}{2}\right) &= 4^{\frac{3}{2}} \\ &= \sqrt{4^3} \\ &= 2^3 \\ &= 8 \end{aligned}$$