

Review Exercise Set 19

Exercise 1: Simplify.

$$\frac{3}{\sqrt[3]{4x^2}}$$

Exercise 2: Simplify.

$$\frac{\sqrt[3]{3x^4}}{\sqrt[3]{4x^2}}$$

Exercise 3: Simplify.

$$\sqrt{\frac{32ab^7}{2a^5b^3}}$$

Exercise 4: Simplify.

$$\frac{a}{4-\sqrt{x}}$$

Exercise 5: Simplify by rationalizing the denominator.

$$\frac{\sqrt{7}}{3\sqrt{2}+2\sqrt{3}}$$

Review Exercise Set 19 Answer Key

Exercise 1: Simplify.

$$\begin{aligned}\frac{3}{\sqrt[3]{4x^2}} &= \frac{3}{\sqrt[3]{4x^2}} \times \frac{\sqrt[3]{2x}}{\sqrt[3]{2x}} \\ &= \frac{3\sqrt[3]{2x}}{\sqrt[3]{8x^3}} \\ &= \frac{3\sqrt[3]{2x}}{2x}\end{aligned}$$

Exercise 2: Simplify.

$$\begin{aligned}\frac{\sqrt[3]{3x^4}}{\sqrt[3]{4x^2}} &= \sqrt[3]{\frac{3x^4}{4x^2}} \\ &= \sqrt[3]{\frac{3x^{4-2}}{4}} \\ &= \sqrt[3]{\frac{3x^2}{4}} \\ &= \frac{\sqrt[3]{3x^2}}{\sqrt[3]{4}} \times \frac{\sqrt[3]{2}}{\sqrt[3]{2}} \\ &= \frac{\sqrt[3]{6x^2}}{\sqrt[3]{8}} \\ &= \frac{\sqrt[3]{6x^2}}{2}\end{aligned}$$

Exercise 3: Simplify.

$$\begin{aligned}\sqrt{\frac{32ab^7}{2a^5b^3}} &= \sqrt{\frac{16b^{7-3}}{a^{5-1}}} \\ &= \sqrt{\frac{16b^4}{a^4}} \\ &= \frac{\sqrt{16b^4}}{\sqrt{a^4}} \\ &= \frac{4b^2}{a^2}\end{aligned}$$

Exercise 4: Simplify.

$$\begin{aligned}\frac{a}{4-\sqrt{x}} &= \frac{a}{4-\sqrt{x}} \times \frac{4+\sqrt{x}}{4+\sqrt{x}} \\ &= \frac{a(4+\sqrt{x})}{(4-\sqrt{x})(4+\sqrt{x})} \\ &= \frac{4a+a\sqrt{x}}{16+4\sqrt{x}-4\sqrt{x}-\sqrt{x^2}} \\ &= \frac{4a+a\sqrt{x}}{16-x}\end{aligned}$$

Exercise 5: Simplify by rationalizing the denominator.

$$\begin{aligned}\frac{\sqrt{7}}{3\sqrt{2}+2\sqrt{3}} &= \frac{\sqrt{7}}{3\sqrt{2}+2\sqrt{3}} \times \frac{3\sqrt{2}-2\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} \\ &= \frac{\sqrt{7}(3\sqrt{2}-2\sqrt{3})}{(3\sqrt{2}+2\sqrt{3})(3\sqrt{2}-2\sqrt{3})} \\ &= \frac{3\sqrt{14}-2\sqrt{21}}{9\sqrt{4}-6\sqrt{6}+6\sqrt{6}-4\sqrt{9}} \\ &= \frac{3\sqrt{14}-2\sqrt{21}}{9(2)-4(3)} \\ &= \frac{3\sqrt{14}-2\sqrt{21}}{18-12} \\ &= \frac{3\sqrt{14}-2\sqrt{21}}{6}\end{aligned}$$