

Integration : Answers

$$\begin{aligned} 104) \quad & \int \left(\frac{3}{x^2} - 2\sqrt{x} \right) dx \\ &= \int 3x^{-2} - 2x^{1/2} dx \\ &= \frac{3x^{-1}}{-1} - \frac{2x^{3/2}}{\frac{3}{2}} + C \\ &= -\frac{3}{x} - \frac{4\sqrt{x^3}}{3} + C \end{aligned}$$

$$\begin{aligned} 105) \quad & \int \left(\frac{5}{x^3} - 3x^{1/4} \right) dx \\ &= \int 5x^{-3} - 3x^{1/4} dx \\ &= \frac{5x^{-2}}{-2} - \frac{3x^{5/4}}{\frac{5}{4}} + C \\ &= -\frac{5}{2x^2} - \frac{12\sqrt[4]{x^5}}{5} + C \end{aligned}$$

$$\begin{aligned} 106) \quad & \int \left(x^{1/3} - \frac{2}{x^{1/4}} \right) dx \\ &= \int x^{1/3} - 2x^{-1/4} dx \\ &= \frac{x^{4/3}}{4/3} - \frac{2x^{3/4}}{\frac{3}{4}} + C \\ &= \frac{3\sqrt[3]{x^4}}{4} - \frac{8\sqrt[4]{x^3}}{3} + C \end{aligned}$$

$$\begin{aligned} 107) \quad & \int \left(3\sqrt{x} - \frac{6}{x^4} - 1 \right) dx \\ &= \int 3x^{1/2} - 6x^{-4} - 1 dx \\ &= \frac{3x^{3/2}}{\frac{3}{2}} - \frac{6x^{-3}}{-3} - x + C \\ &= 2\sqrt{x^3} + \frac{2}{x^3} - x + C \end{aligned}$$

$$\begin{aligned}
 108) \quad & \int \left(\frac{3}{\sqrt{x}} - 4x^{2/3} \right) dx \\
 &= \int 3x^{-1/2} - 4x^{2/3} dx \\
 &= \frac{3x^{1/2}}{\frac{1}{2}} - \frac{4x^{5/3}}{\frac{5}{3}} + C \\
 &= 6\sqrt{x} - \frac{12\sqrt[3]{x^5}}{5} + C
 \end{aligned}$$

$$\begin{aligned}
 109) \quad & \int \left(\sqrt[3]{x} - \frac{2}{x^{3/4}} \right) dx \\
 &= \int x^{1/3} - 2x^{-3/4} dx \\
 &= \frac{x^{4/3}}{\frac{4}{3}} - \frac{2x^{1/4}}{\frac{1}{4}} + C \\
 &= \frac{3\sqrt[3]{x^4}}{4} - 8\sqrt[4]{x} + C
 \end{aligned}$$

$$\begin{aligned}
 110) \quad & \int \left(\frac{4}{x^3} - 3x^{1/4} \right) dx \\
 &= \int 4x^{-3} - 3x^{1/4} dx \\
 &= \frac{4x^{-2}}{-2} - \frac{3x^{5/4}}{\frac{5}{4}} + C \\
 &= -\frac{2}{x^2} - \frac{12\sqrt[4]{x^5}}{5} + C
 \end{aligned}$$

$$\begin{aligned}
 111) \quad & \int \left(3\sqrt{x} - \frac{2}{x^{5/3}} \right) dx \\
 &= \int 3x^{1/2} - 2x^{-5/3} dx \\
 &= \frac{3x^{3/2}}{\frac{3}{2}} - \frac{2x^{-2/3}}{-\frac{2}{3}} + C \\
 &= 2\sqrt{x^3} + \frac{3}{\sqrt[3]{x^2}} + C
 \end{aligned}$$

$$\begin{aligned}
 112) \quad & \int \left(\frac{5}{x^4} - 7x^{2/3} \right) dx \\
 &= \int 5x^{-4} - 7x^{2/3} dx \\
 &= \frac{5x^{-3}}{-3} - \frac{7x^{5/3}}{\frac{5}{3}} + C \\
 &= -\frac{5}{3x^3} - \frac{21\sqrt[3]{x^5}}{5} + C
 \end{aligned}$$

$$\begin{aligned}
 103) \quad & \int \left(\sqrt{x} + \frac{2}{x^2} \right) dx \\
 &= \int x^{1/2} + 2x^{-2} dx \\
 &= \frac{x^{3/2}}{\frac{3}{2}} + \frac{2x^{-1}}{-1} + C \\
 &= \frac{2\sqrt{x^3}}{3} - \frac{2}{x} + C
 \end{aligned}$$

$$\begin{aligned}
 101) \quad & \int \left(2x^{3/2} + \frac{9}{x^4} \right) dx \\
 &= \int 2x^{3/2} + 9x^{-4} dx \\
 &= \frac{2x^{5/2}}{\frac{5}{2}} + \frac{9x^{-3}}{-3} + C \\
 &= \frac{4\sqrt{x^5}}{5} - \frac{3}{x^3} + C
 \end{aligned}$$

$$\begin{aligned}
 102) \quad & \int \left(4x^{2/3} - \frac{7}{\sqrt{x}} \right) dx \\
 &= \int 4x^{2/3} - 7x^{-1/2} dx \\
 &= \frac{4x^{5/3}}{\frac{5}{3}} - \frac{7x^{1/2}}{\frac{1}{2}} + C \\
 &= \frac{12\sqrt[3]{x^5}}{5} - 14\sqrt{x} + C
 \end{aligned}$$

$$\begin{aligned}
 103) \quad & \int \left(5\sqrt{x} - \frac{4}{x^{2/3}} \right) dx \\
 &= \int 5x^{1/2} - 4x^{-2/3} dx \\
 &= \frac{5x^{3/2}}{\frac{3}{2}} - \frac{4x^{1/3}}{\frac{1}{3}} + C \\
 &= \frac{10\sqrt{x^3}}{3} - 12\sqrt{x} + C
 \end{aligned}$$