

Find each of the following.

$$1. \int 12x^3 + \frac{6}{x^2} + 5e^{3x} dx = \int 12x^3 + 6x^{-2} + 5e^{3x} dx =$$
$$\frac{12x^4}{4} + \frac{6x^{-1}}{-1} + \frac{5e^{3x}}{3} + C = 3x^4 - 6x^{-1} + \frac{5e^{3x}}{3} + C$$

$$2. \int x^2 (5x^2 + 7x^{-3}) dx = \int 5x^4 + 7x^{-1} dx =$$
$$\frac{5x^5}{5} + 7\ln(x) + C = x^5 + 7\ln(x) + C$$

$$3. \int \sqrt[3]{x^5} + \frac{8}{x} + 10 dx = \int x^{5/3} + 8x^{-1} + 10 dx =$$
$$\frac{x^{8/3}}{8/3} + 8\ln(x) + 10x + C$$
$$\frac{3}{8}x^{8/3} + 8\ln(x) + 10x + C$$