

Answer. Q. 14.

$$6) \int (8x^4 + 4x^3 - 6x^2 - 8) dx$$

$$\int 8x^4 dx = \frac{8x^5}{5} \quad \int 4x^3 dx = x^4 \quad \int 6x^2 dx = 2x^3$$

$$\int 8 dx = 8x = \frac{8x^5}{5} + x^4 - 2x^3 - 8x + C$$

$$7) \int (2 + 3x^2 - 8x^3) dx$$

$$= \int 2 dx + \int 3x^2 dx - \int 8x^3 dx$$

$$\int 2 dx = 2x$$

$$\int 3x^2 dx = x^3$$

$$\int 8x^3 dx = 2x^4$$

$$= 2x + x^3 - 2x^4 + C$$

$$7) \int \sqrt[3]{x(x+1)} dx$$

$$x^{\frac{1}{3}}(x+1) = x^{\frac{4}{3}} + x^{\frac{1}{3}}$$

$$\frac{x^{\frac{4}{3} + \frac{3}{3}}}{\frac{1}{3} + \frac{3}{3}} = \frac{x^{\frac{7}{3}}}{\frac{4}{3}} = \frac{3x^{\frac{7}{3}}}{4}$$

$$\frac{x^{\frac{1}{3} + \frac{3}{3}}}{\frac{1}{3} + \frac{3}{3}} = \frac{x^{\frac{4}{3}}}{\frac{4}{3}} = \frac{3x^{\frac{4}{3}}}{4}$$

$$\frac{3x^{\frac{7}{3}}}{4} + \frac{3x^{\frac{4}{3}}}{4} + C$$


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$$D) \int (ax^2 + bx + c) dx$$

$$= \int ax^2 dx + \int bx dx + \int c dx \quad \int ax^2 dx = \frac{ax^3}{3}$$

$$\int bx dx = \frac{bx^2}{2} \quad \int c dx = cx \quad \frac{ax^3}{3} + \frac{bx^2}{2} + cx + c$$

$$D) \frac{2}{3} x^{3/2} - 2x^{1/2} + c$$