

$$1. \int 6x^2 dx = 2x^3 + C$$

$$\frac{d}{dx}(2x^3 + C) = 2 \cdot 3x^2 \\ = 6x^2 \checkmark$$

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

$$\frac{d}{dx}(3x - 5x^{\frac{1}{2}} + C)$$

$$= 3 - 5 \cdot \frac{1}{2} x^{-\frac{1}{2}}$$

$$= 3 - x^{-\frac{1}{2}}$$

$$= 3 - \frac{1}{x^{\frac{1}{2}}}$$

$$= 3 - \frac{1}{\sqrt{x}} \checkmark$$

FORMULA

$$1. \int k dx = kx + C$$

$$2. \int x^n dx = \frac{x^{n+1}}{n+1} + C$$

$$3. \int 3 dx$$

$$= 3x + C$$

$$4. \int 7x^2 dx$$

$$= 7 \int x^2 dx$$

$$= 7 \cdot \frac{x^{2+1}}{2+1} + C$$

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

$$5. \int 2y^{-3} dy$$

$$= \frac{2y^{-3+1}}{-3+1} + C$$

$$= \frac{2y^{-2}}{-2} + C$$

$$= -\frac{1}{y^2} + C$$

$$6. \int x^{-\frac{1}{3}} dx$$

$$= \frac{x^{-\frac{1}{3}+1}}{-\frac{1}{3}+1} + C$$

$$= \frac{x^{\frac{2}{3}}}{\frac{2}{3}} + C$$

$$= \frac{3}{2} \cdot x^{\frac{2}{3}} + C$$

$$= \frac{3}{2}x^{\frac{2}{3}} + C$$

$$7. \int \frac{1}{x^5} dx$$

$$\int x^{-5} dx$$

$$= \frac{x^{-5+1}}{-5+1} + C$$

$$= \frac{x^{-4}}{-4} + C$$

$$= -\frac{1}{4x^4} + C$$

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

$$\int (3x^3 - 2x^2) dx$$

$$= \frac{3x^{3+1}}{3+1} - \frac{2x^{2+1}}{2+1} + C$$

$$= \frac{3}{4}x^4 - \frac{2}{3}x^3 + C$$