

Indefinite Integrals I - Answer Key

Compute the following indefinite integrals.

$$1. \int (5x+3)^7 \ln(2) dx$$
$$\frac{\ln(2)}{5} \frac{(5x+3)^8}{8} + C$$

$$6. \int \left(5x^3 + \frac{\sqrt{\pi}}{2\sqrt{x}} + 2^x - e^{-(\ln 2)^2/2} \right) dx$$
$$\frac{5x^4}{2} + \frac{1}{\sqrt{2\pi x}} + (\ln 2)2^x - x - e^{-(\ln 2)^2/2} + C$$

$$2. \int \frac{9x^2 + 7x + 1}{4x} dx$$
$$\frac{9}{8}x^2 + 7x + \frac{1}{4} \ln|x| + C$$

$$7. \int \frac{dx}{3x+5}$$
$$\frac{\ln(3x+5)}{3} + C$$

$$3. \int e^{5x+7} dx$$
$$\frac{1}{5} e^{5x+7}$$

$$8. \int \frac{x \sec^2 x + x^3}{x} dx$$
$$\tan x + \frac{x^3}{3} + C$$

$$4. \int \cos^2(4x) dx$$
$$\frac{1}{2} \left(x + \frac{\sin(8x)}{8} \right) + C$$

$$9. \int 5xe^{x^2+7} dx$$
$$\frac{5}{2} e^{x^2+7} + C$$

$$5. \int \frac{x + \sqrt{x}}{x^2} dx$$
$$\ln|x| - \frac{2}{\sqrt{x}} + C$$

$$10. \int \sin(x) \cos(x) dx$$
$$\frac{1}{2} \sin^2(x) + C$$