

$$\int (\sqrt{x} + x) dx = \int (x^{\frac{1}{2}} + x) dx = \frac{x^{\frac{3}{2}}}{\frac{3}{2}} + \frac{x^2}{2} + C = \frac{2x^{\frac{3}{2}}}{3} + \frac{x^2}{2} + C$$

$$\int (12h^2 + 6h^3) dh = \frac{12h^3}{3} + \frac{6h^4}{4} = 4h^3 + 1.5h^4 + C$$

$$| du = (12h^2 + 6h^3) dh |$$

$$dy = 3 \sin x dx$$

$$\int 3 \sin x dx = 3 - \cos x + C$$

$$\int 3 \sin x dx = 3(-\cos x) + C = -3 \cos x + C$$

$$\int \sin(3x^2) dx = \frac{1}{2} \int \sin(\cos) dx$$

$$\frac{1}{6} \cos(3x^2) + C = \frac{1}{6} (\cos(3x^2)) + C$$

$$\int (4x^2 - 3)^5 x dx = \frac{1}{8} \int (4x^2 - 3)^5 8x dx = \frac{1}{8} \frac{(4x^2 - 3)^6}{6} + C$$

$$\frac{(4x^2 - 3)^6}{48} + C$$

$$\int v^n dv = \frac{v^{n+1}}{n+1} + C$$

$v = 3x-5 \quad dv = 3dx$

$$\int (3x-5)^6 dx = \frac{1}{3} \int (3x-5)^6 3dx = \frac{1}{3} \cdot \frac{(3x-5)^7}{7} + C$$

$$\int \sec^2(3x^2) x dx = \frac{1}{6} \int (\sec^2(3x^2)) 6x dx = \frac{1}{6} \tan(3x^2) + C$$

$v = 3x^2 \quad dv = 6x dx$

$$\int \sqrt{4x-3} dx = \int (4x-3)^{\frac{1}{2}} dx = \frac{1}{4} \int (4x-3)^{\frac{1}{2}} 4 dx = \frac{1}{4} \cdot \frac{(4x-3)^{\frac{3}{2}}}{\frac{3}{2}} + C = \frac{2}{11} \cdot \frac{(4x-3)^{\frac{3}{2}}}{3} + C = \frac{(4x-3)^{\frac{3}{2}}}{6} + C$$

$$\int e^{6x-11} dx = \int e^{6x-11} 6 dx = \frac{1}{6} e^{6x-11} + C$$

$$\int \left( \frac{3}{5} x^3 + 5x^4 \right) dx = \left( \frac{3}{5} \right) \frac{x^4}{4} + \frac{5x^5}{5} + C$$

$$\frac{3x^4}{20} + x^5 + C$$