

$$\int \frac{4}{\sqrt{6x-1}} dx$$

$$\int \frac{8(x^2+1)}{(x-3)(x+1)^2} dx:$$

$$\int_0^{\frac{\pi}{2}} (2\sin x - 3\cos x)^2 dx$$

$$\int_{\frac{1}{e}}^1 x \ln x dx:$$

$$\int_0^{\sqrt{2}} \frac{x^2}{\sqrt{4-x^2}} dx:$$

$$\int \frac{\cos x}{\sqrt{\sin^3 x}} dx:$$

$$\int \frac{3}{4x+1} dx$$

$$\int \frac{4}{\sqrt{6x-1}} dx = \frac{4}{3} \sqrt{6x-1} + C$$

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

$$\int_0^{\frac{\pi}{2}} (2 \sin x - 3 \cos x)^2 dx = \frac{1}{4}(13\pi - 24)$$

$$\int_{\frac{1}{e}}^1 x \ln x dx = \frac{1}{4} \left(\frac{3}{e^2} - 1 \right)$$

$$\int_0^{\sqrt{2}} \frac{x^2}{\sqrt{4-x^2}} dx = \frac{\pi}{2} - 1,$$

$$\int \frac{\cos x}{\sqrt{\sin^3 x}} dx = -\frac{2}{\sqrt{\sin x}} + C$$

$$\int \frac{3}{4x+1} dx = \frac{3}{4} \ln|4x+1| + C$$