

Assignment : Definite Integration by substitution

Evaluate each definite integral.

1) $\int_{-1}^0 (-x^3 + x^2 + 1) dx$

2) $\int_0^2 -3e^{x-2} dx$

3) $\int_{-\pi}^{-\frac{\pi}{2}} 2\cos x dx$

4) $\int_{\frac{\pi}{2}}^{\pi} 2\cos x dx$

5) $\int_0^1 -\frac{6x}{(x^2 + 2)^2} dx; u = x^2 + 2$

6) $\int_{-1}^0 -12x^2(2x^3 + 3)^3 dx; u = 2x^3 + 3$

7) $\int_{-2}^{-1} -\frac{16x}{(4x^2 + 2)^2} dx; u = 4x^2 + 2$

8) $\int_{-2}^0 \frac{8x}{(4x^2 + 2)^2} dx; u = 4x^2 + 2$

9) $\int_{-1}^0 -\frac{2x}{(x^2 + 1)^2} dx; u = x^2 + 1$

10) $\int_{-3}^{-1} -\frac{4x}{(x^2 + 1)^2} dx; u = x^2 + 1$

Answers to Assignment : Definite Integration by substitution

1) $\frac{19}{12} \approx 1.583$

2) $\frac{-3e^2 + 3}{e^2} \approx -2.594$

3) -2

4) -2

5) $-\frac{1}{2} = -0.5$

6) -40

7) $\frac{2}{9} \approx 0.222$

8) $-\frac{4}{9} \approx -0.444$

9) $\frac{1}{2} = 0.5$

10) $\frac{4}{5} = 0.8$

