

**Access to Science, Engineering and Agriculture:  
Mathematics 1  
MATH00030  
Chapter 7 Exercises**

1. Find the following integrals.

Note that these can be done just using Table 1 of Chapter 7 of the course notes.

(a)  $\int_0^1 5 \, dx$

(b)  $\int -\pi \cos(e) \, dx$

(c)  $\int_{-1}^1 x^2 \, dx$

(d)  $\int x^{\frac{9}{2}} \, dx$

(e)  $\int_1^2 x^{-5} \, dx$

(f)  $\int x^{\cos(2)} \, dx$

(g)  $\int_0^2 e^{4x} \, dx$

(h)  $\int e^{\frac{3}{2}x} \, dx$

(i)  $\int_{-1}^0 e^{-6x} \, dx$

(j)  $\int e^{\pi x} \, dx$

(k)  $\int_1^2 \frac{1}{x} \, dx$

(l)  $\int \sin(2x) \, dx$

(m)  $\int_0^{\frac{\pi}{3}} \sin(-3x) \, dx$

(n)  $\int \sin(ex) \, dx$

(o)  $\int_{-\pi}^{\frac{\pi}{3}} \cos(3x) \, dx$

(p)  $\int \cos(-\pi x) \, dx$

2. Find the following integrals.

Note that these can be done using Table 1 of Chapter 7 of the course notes together with the Sum and Multiple Rules.

(a)  $\int_{-1}^1 1 + 3x - 2x^2 + 3x^3 - 4x^4 dx$

(b)  $\int -x^{-1} + 2 \sin 4x dx$

(c)  $\int_0^\pi 3e^{-\frac{1}{2}x} - 2 \cos\left(\frac{1}{2}x\right) dx$

(d)  $\int 4 \cos(-3x) - e^{-\frac{3}{2}x} dx$

(e)  $\int_{-2}^1 -2x^2 + e^{\cos(1)x} dx$

(f)  $\int 2 \sin(3x) - 3 \sin(2x) + 2 \cos(3x) - 3 \cos(2x) dx$

(g)  $\int_1^3 e^2 + e^{2x} - 4 dx$

(h)  $\int -3x^{-3} + 4x^4 + 5x^{-5} + 3x^0 dx$