

This list may grow over time. For the stated definite or indefinite integrals determine the answer.

1. Given  $f'(1) = 2$  and  $f'(2) = 3$ , determine

$$\int_1^2 f'(x)f''(x)dx$$

2.

$$\int \cos^{-1}(x)dx$$

3.

$$\int \cos^3(x) \sin^4(x)dx$$

4.

$$\int \frac{dx}{\sqrt{3-2x-x^2}}$$

5.

$$\int \frac{x-13}{x^2-x-6}dx$$

6. Determine  $k$  so that

$$\int_{-1}^1 (1+k|x|)dx = 1$$

7.

$$\int_0^{5/2} \frac{dx}{\sqrt{25-x^2}}$$

8.

$$\int_{-1}^2 |2x| dx$$

9. Compute  $F'(\pi)$  given

$$F(x) = \int_0^{\cos(x)} \frac{1}{t^3+6} dt$$

10. Compute the area bounded by the curve  $y = f(x)$  and the  $x$ -axis and between  $x = 0$  and  $x = 1$ .

$$f(x) = \frac{1}{(2x-4)^2}$$

11.

$$\int \frac{\ln(x)}{x^7} dx$$

12. (this was a 6 mark question). You are given  $f(0) = 1$ ,  $f(2) = 3$ , and  $f'(2) = 4$ . Determine

$$\int_0^4 f''(\sqrt{x})dx$$