[1] Evaluate *f'(2)* where

$$f(x) = e^{2\ln x} + x$$

[2] Find the value of *c* if

$$f(x) = xe^{cx}$$

and

$$f'(0.5) = 0$$

[3] Evaluate the limit using L'Hôpital's rule

$$\lim_{x\to 0} \frac{1 - e^{-2x}}{x}$$

[4] Find the maximum and minimum of the following function

$$y = x^3 - 12x$$

on the interval

$$-3 \le x \le 3$$

[5] Evaluate the definite integral

$$\int_0^{\infty} e^{-\frac{x}{2}} dx$$

[6] Find the value of *k* if

$$\int_0^1 \frac{1}{\sqrt[3]{x^k}} dx = 3$$

[7] Find one possible value of *x* that satisfies the equation:

$$\sin^2(7) + \cos^2(x) = 1$$