* Graded Quiz-4

[1] Minimum

[2] No, since exponent does not matter while calculating the machine Epsilon value

[3] $$f'(x) = \frac{f(3.2) - f(3.0)}{2(0.1)} = \frac{3.8 - 1.5}{2(0.1)} = 11.5$$

[4] $$\epsilon = \frac{1}{2}B^{-m} = \frac{1}{2}(2)^{-5} = \frac{1}{64}$$

Quiz-4 PDF

[1] $$f'(x) = \frac{f(x_0) - f(x_0 - h)}{h} = \frac{f(2) - f(1.99)}{0.01}$$

$$= \frac{1001.386294 - 965.887516}{0.01}$$

$$= 3549.8778 \quad [4\text{dp}]$$

[2] $$f'(x) = x\left(\frac{1}{x}\right) + \ln(x) + 3(3x^2 - 2)^2(6x)$$

$$= 3601.693147$$

$$\approx 3601.6931 \quad [4\text{ dp}]$$

(3) % error = $\frac{|3601.6931 - 3549.8778|}{|3601.6931|} \times 100\%$

1.4386%