

Assignment-I

1. Calculate, the value of $\sqrt{103} + \sqrt{99}$, correct to four significant figures.
2. Find relative error in the quotient $\frac{4.536}{1.32}$, the number being correct to the digits given.
3. Write down the Taylor's series expansion of $f(x) = \cos x$ at $x = \pi/3$ in terms of $f(x)$, and its derivatives at $x = \pi/4$. Compute the approximations from zeroth order to fifth order and also state the absolute error in each case.
4. If
$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$
where x is in radians. Use the series to compute the value of $\sin 25^\circ$ to an accuracy of 0.001.