

KMM 1002 Basic Computer Sciences - Homework 1

1. For $x = \pi/9$, solve the equations given below:

$$\cos 2x = \frac{1 - \tan^2 x}{1 + \tan^2 x} \qquad \sin 4x = 4 \sin x \cos x - 8 \sin^3 x \cos x$$

2. Plot the curves of $x = t^3 - 2t + 9$, $y = 6t^5 - t$, $z = t^2 + 7$ in one graph.

3. Plot the bar graph of $A = [5 \ 8 \ -2 \ 6 \ 4 \ 0 \ 7]$.

4. Plot the curve of $z = 2x^2 + y$ surface between the axis values of $x = (-2, 2)$ and $y = (-2, 2)$ with increments of 0.2.

5. Plot the curve of $z = e^{-2x} + 4x^3$ between the values of (2, 50).

6. Plot the curves of $x = 9\sin(t)$, $y = 2\tan(3t) + \cos(t)$ between the axis values of (0, 10) with increments of 0.05.

7. Solve the equations given below.

$$(-3.5)^3 + \frac{e^6}{\ln 524} + 206^{1/3} \quad , \quad \frac{2.5^3 \left(16 - \frac{216}{22} \right)}{1.7^4 + 14} + \sqrt[4]{2050}$$

8. Create the B matrix given below:

$$B = \begin{bmatrix} 18 & 17 & 16 & 15 & 14 & 13 \\ 12 & 11 & 10 & 9 & 8 & 7 \\ 6 & 5 & 4 & 3 & 2 & 1 \end{bmatrix}$$

Obtain a 6 element E matrix, which contains the 2nd and 5th columns of B matrix.