

Homework 1MATLAB

Using MATLAB, complete the following problems. Show the MATLAB Command and the results obtained.

1) Evaluate

a) $10 \frac{\sqrt{6} - 1}{(\sqrt{6} + 1)^2}$

b) $A = 4\pi r^2$, $r = \pi^{1/2} - 1$

c) $e^{2\sqrt{4.5}}$

d) $\log_{10}(10^7)$

e) $y = \frac{\ln 15}{\ln 3}$

f) $\frac{11 - 2i}{1 + 5i}$

g) $e^{i\pi/6}$

h) $\cos^2 \frac{\pi}{12} + \sin^2 \frac{\pi}{12}$

2) Evaluate the Roots of the following polynomial by two different Commands.

$$x^4 + 21x^2 + 6x^3 - 24x - 100$$

- 3) plot $\sin 2x$ and $\cos 2x$ from 0 to π using increment of $\Delta x = 0.01$ on the same graph, using the HOLD command.

Write title as : plot of $\sin 2x$ & $\cos 2x$ Versus x
xlabel as : x axis
ylabel as : y axis

- 4) Using Subplot Command, obtain plot of $\sin 2x$ versus x for one plot & $\cos 2x$ versus x for the other. Place title, xlabel and ylabel similar to problem 3.

- 5) Evaluate the derivative of the following functions;

a) $f(x) = x \cos^2 5x$

b) $f(x) = 5x^4 + 6x^3 - 2x^2 + 10x + 2$

- 6) Evaluate the following integrals

a) $\int x^2 \sin x \, dx$

b) $\int_0^{\pi/4} x^2 \sin 2x \, dx$

c) $\int_0^2 5e^{-2.5x} \, dx$