Quiz (V)
Finished by 18:30 on 5/25

Create a matlab script and change the filename to F7xxxxxxx_quiz5.m. Link all the programs to solve following problems to this script. Make sure once type the filename' F7xxxxxxx_quiz5', the results of the following problems will pop-up automatically in order. Remember not to type any 'clear all ', 'close all' command in any of the codes.

1. [F7xxxxxxx_quiz5_prob1.m] Find a root of $3x^2 - e^x = 0$
   (a) Find the largest negative root using multiple partition method with 6-digit precision. Record the initial interval and the number of iterations to get to the solution.
   (b) Find the smallest positive root using Newton's Method with 10-digit precision. Record the initial value and the number of iterations to get to the solution.

2. [F7xxxxxxx_quiz5_prob2.m] Find a root of $x + 3cosx = 0$
   (a) Use Newton Raphson or Fixed Point method to find 'ONE' solution with 6-digit precision. Record the initial value and the number of iterations to get to the solution.
   (b) There should be three roots of this equation. Could you find the medium using Secant method with 8-digit precision? Record the initial value and the number of iterations to get to the solution.

3. {Bonus} [F7xxxxxxx_quiz5_prob3.m] Suppose James, LeBron (2.03m tall) is standing 6.25 m away from the basket (3.1m high). The basketball is probably leaving his hand at 2.83m with a speed of 8.2m/s. Which shooting angle should he aim to score? Note that the radius of the basketball and the basket are around 12 and 23cm respectively.

4. {Bonus} [F7xxxxxxx_quiz5_prob4.m] Find all the roots of $x^5 - 1.2x^4 - 19.85x^3 + 4.056x^2 + 0.994x - 0.12 = 0$
   (a) What are the roots?
   (b) Explain how you find them?
   (c) Could you make a solver to solve all the roots automatically?