Kumin In

012216371

February 8, 2017

Introduction to Numerical Analysis

Math 323 – 01/03

1. function [volume, surfacearea] = solidprops(l,w,h)

volume = l \* w \* h;

surfacearea = (2 \* l \* w) + (2 \* l \* h) + (2 \* w \* h);

2. function s = sumprod(n)

s = 0;

for i = 1:n-1

s = s + (i \* (i + 1));

end

3.a) In each case, determine which response MATLAB will give when the variable shown is typed at the prompt in the command window.

i) B. z = 183

ii) A. x = 6

iii) C. ??? Undefined function or variable ‘y’

3.b)In each case, determine which response MATLAB will give when the variable shown is typed at the prompt in the command window.

i) B. z = 183

ii) A. x = 6

iii) C. ??? Undefined function or variable ‘y’

4.a) What is the value of s after this code is executed?

n = 1: s = 0 + 1

n = 3: s = 1 + 9

n = 5: s = 10 + 25

The value of s after the code is executed is 35.

4.b) What is the value of n after this code is executed?

The value of n after the code is executed is 7.

5.a) When Tom runs the program, MATLAB doesn’t appear to do anything. Why? Circle your answer.

ii) MATLAB is executing the code but it never stops because the criterion d > 10^(-7) is always satisfied.

5.b) If the code needs to be fixed indicate how it should be fixed.

>> xold = 1;

>> yold = (2 - 2^cos(xold))/sin(xold)^2;

>> d = 1;

>> while d > 10^(-7)

xNew = 0.1\*xold

yNew = (2 - 2^cos(xNew))/sin(xNew)^2;

xold = xNew;

yold = yNew;

d = abs(yNew - yold);

end

5.c) Use the corrected m-file to find the value of the limit. Write your answer correct to 6 decimal places.

0.693147

6.a) Suppose you type “>> clear, f = sin; f(2)” at the prompt in the command window. How does MATLAB respond?

i. It complains because it needs an input to sin in order to execute the command f = sin.

6.b) Suppose you type “>> clear, myf = x.^2 – 5\*x; g = myf; g(3)” at the prompt in the command window. How does MATLAB respond? Circle your answer.

i. It complains because x is not a variable in the workspace so it can’t execute the command myf = x.^2-5\*x.

6.c) Suppose you type “>> clear, myf = @(x) x.^2 – 5\*x; g = myf; g(3)” at the prompt in the command window. How does MATLAB respond? Circle your answer.

iv. ans = -6

6.d) Suppose you type “>> clear, x = 1; y = 7; myf = @(x, y) x\*y – y^2./x; myf(2,7)” at the prompt in the command window. How does MATLAB respond?

iii. ans = -10.5

6.e) Suppose you type “>> clear, y = 7; myf = @(x) x\*y – y^2./x; myf(2)” at the prompt in the command window. How does MATLAB respond?

iv. ans = -10.5000.

7.a) If x = 3 and y = 7 are typed prior to this code being executed, what are the values of x and y after the code is executed?

The value of x is 3 and the value of y is 7.

7.b) If x = 7 and y = 3 are typed prior to this code being executed, what are the values of x and y after the code is executed?

The value of x is 3 and the value of y is 7.

7.c) Describe in words what the code does.

If the value of x is greater than the value of y, then swap the x and y variables using a temporary variable.