

CS 105 – Introduction to Scientific Computing

Assignment 2 – Computations using Variables

Objectives

After completing this assignment you should be able to:

1. Evaluate polynomial and exponential equations for given values
2. Evaluate equations based on previous results

Overview

Often we want to evaluate equations which have several variables and constants in it. We can do this by first assigning values to the variables and then evaluate the equation using those values.

In this assignment you will practice typing equations into the command line and reporting the output. However you must first assign variables values in order to evaluate the expressions.

Part I

For each of the following, state whether or not the name is a valid name for a MATLAB variable. If it is not, explain why. Verify by trying to assign a value to each name.

1. Isthisgood1
2. How_Are_You
3. How_Are_You?
4. 4x
5. _help

Part II

In Matlab first assign the variables

`u=1;`

`v=3;`

then evaluate the following expressions (needless to say you must translate these into valid Matlab expressions):

6. $\frac{4u}{3v}$

7. $\frac{2v^{-2}}{(u+v)^2}$

8. $\frac{v^3}{v^3-u^3}$

9. $\frac{4}{3}\pi v^2$

(use the Matlab **help** to determine how to use the symbol for pi)

Part III

In Matlab first assign the constants

`a = 2;`

`b = 3;`

`c = -1;`

`P = 1000;`

`r = 8.5;`

then evaluate the following equations for each of the values of x specified

10. Let `x=0`

a. $y=ax+b$

b. $y=ax^2+bx+c$

11. Let `x=20`

a. $y=ax+b$

b. $y=ax^2+bx+c$

12. Let `n=5`

a. $A = P(1+r)^n$

Submission

Your submission should include a single PDF document inside of a *zip* file (you will submit the zip file).

This document will report your findings for each part. You may include screenshots in the document if you like.

This report should also state things like:

1. What you did
2. How you did it
3. Any additional things you tried or discoveries you made