MATH-151: Matlab Introduction Lab

Due: Monday, August 28, 2023, 10:00am

Please perform the following tasks using Matlab, submitting all relevant code. You are welcomed to work with other students, however each student must submit their own unique code.

Task 1: Variables and Operations

A surprisingly common issue when trying to modify someone else's code is when they use different measurement units than you. To practice working with variables and basic math operations, we will convert units on the heights of some objects. *(Style tip: In complicated codes it can be helpful to include units in the variable name. For example: `tree_ft` for the height of a tree, in feet)*

a) To convert a measurement in feet to meters we multiply the height by 0.3048. Please convert the heights (in feet) of the following objects to meters. (Be sure to store each measurement as a variable for future use)

Object	Height (ft)
Table	2.5
Ladder	12
Chris	5.67

b) How tall, in meters, is Chris while standing on a ladder?

c) In meters, how much taller is the ladder than the table?

d) Suppose a square room has walls that are 4.8768 meters long, how long are the walls in feet? (To convert from meters to feet we divide the measurement by 0.3048.)

e) What is the area of the room in ft^2?

Task 2: Help Utilities

One of the most valuable features of Matlab is that it is very well documented! For this task we will look at the `help` utility to learn more about one of my favorite functions, `atan2`.

a) In the Matlab Command Window, enter `help atan2`. It will give you a short description of the function. You may also click on the link "Documentation for atan2" to open the function's documentation page, which includes much more detail. Using these utilities, describe the difference between the `atan` and `atan2` functions.

b) What is the difference between `atan2` and `atan2d`?

Remember to comment your code!