
Remember to indent the bodies of your IF-THEN and looping structures.

- 1) (5 pts) Write a MATLAB script that will ask the user to input a series of positive numbers and compute their geometric mean, defined as

$$\sqrt[n]{x_1 \cdot x_2 \cdots x_n}.$$

You should use a `while` loop to do the input. You can trigger the end of the input by having the user input a negative value.

- 3) (5 pts) Suppose that MATLAB did not have the `linspace` function and you need to generate a vector of $n + 1$ equally spaced points on some interval of the x -axis, $[a, b]$, given the values of a, b and the number of subdivisions, n . There are 2 ways to do this:

Method 1:

```
h = (b-a)/n
x(1) = a
for i = 2:n+1
    x(i) = x(i-1) + h
end
```

Method 2:

```
h = (b-a)/n
for i = 1:n+1
    x(i) = a + (i-1)*h
end
```

Test both methods using the values $a = -\frac{\pi}{2}, b = \frac{\pi}{3}$ and $n = 123456789$. For both cases, compute the relative error in the value of $x(n+1)$ once the loop terminates (this should be equal to b). Recall that relative error is defined as

$$\text{Relative Error} = \frac{\text{Approximate value} - \text{Exact Value}}{\text{Exact Value}}$$

Which method is more accurate (*i.e.*, which method has the smaller relative error)? Explain why the more accurate method has the lower relative error.