Matlab Homework 1c

All work is to be completed using the Matlab program *only!*

After figuring out how to answer the questions, you must "publish" your results to pdf and print out that pdf. The first section must be created as:

```
%% Homework 1c due mm/dd/yy _YOUR NAME_

% get rid of excessive whitespace
format compact
```

The final section should be created as:

```
%% End of homework 1c.
```

Each question must be a separate section, with a generic description. Each matlab line in your solution must be preceded by an explanatory comment.

1. Use matlab to evaluate

   (a) 65 F in degrees Centigrade

   (b) The circumference of a circle of radius 3.

   (c) The number of molecules in a mole, using exponential form.

   (d) 1/Inf

   (e) Inf-Inf

   (f) $((10^{10})^{10})^{10}$

   (g) Show that $\cos(10^2\pi)$ has the expected value 1.

   (h) Show that $\cos(10^{20}\pi)$ does not have the expected value 1.

   (i) The tan of 45 degrees

   (j) Compare arccos(-1) (in radians) with the exact value.

   (k) Show that if number $2 + 3i$ is squared, the result is *not* a positive real number.

   (l) Show that if number $2+3i$ is multiplied by its complex conjugate, the result *is* a positive real number.

   (m) Evaluate $1 + (3 * (5^{0.5}))$ in the order shown using the minimal number of parentheses needed.

   (n) Evaluate $((1 + 3) * 5)^{0.5}$ in the order shown using the minimal number of parentheses needed.

   (o) Evaluate Bessel function $J_0(x)$ at $x = 1$. (Hint: Matlab uses lowercase. The correct value starts as $0.7\ldots$)

2. Define Euler's number e. Print it out only after giving it its value.

3. Assign the values 1, 2, and 3 to variables A, B, and C, respectively. Then move the original value of B to C, of A to B, and of C to A (without using the explicit values). Do not print out the values while doing all that. Print out the values that A, B, and C end up only afterwards.