

## MAT 1206 – Introduction to MATLAB

### Quiz 1

Time Allowed: 30 minutes

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- 1) Create a new script file and save it as "calculations\_1.m". Write MATLAB codes to do the following calculations in the above script separately. Add a comment before each part to indicate the question number such as “% i.”

i.  $\frac{3}{25}(4.1)(5^4) - 2.5 \times 1.25$

ii.  $\frac{0.55^3}{3^4-150} + \frac{81^{3/4}}{12} + 3^{-3}$

iii.  $120 \left( 5 \sqrt{\frac{(2+\cos(120^\circ))^3 - \ln(5.25)}{2.5e^{5/3} + \sin(\pi/6)}} \right)$

- iv. Round the answer of part iii. to two decimal places using a suitable MATLAB function.

- v. Find the ceiling and floor values of part iii. answer.

- 2) Create a new script file and save it as "calculations\_2.m". Write MATLAB codes to do the following tasks in the above script separately. Add a comment before each part to indicate the question number such as “% ii. a.”

- i. Define a variable “**radius**” with a value of your choice (in meters).

- ii. Use arithmetic operations to calculate and display the following:

- a) The circumference of a circle with radius “**radius**”
- b) The area of a circle with radius “**radius**”
- c) The volume of a sphere with radius “**radius**”

- iii. Define a variable “**temperature\_celsius**” with a value of your choice (in degrees Celsius).

- iv. Use arithmetic operations to calculate and display the following:

- a) The equivalent temperature in degrees Fahrenheit
- b) The equivalent temperature in Kelvin

- v. Define variables “**mass**” and “**velocity**” with values of your choice (in kilograms and meters per second, respectively).

- vi. Use arithmetic operations to calculate and display the kinetic energy of an object with mass “**mass**” and velocity “**velocity**”.

Required formulas for the above calculations are given below:

$$C = 2\pi r, \quad A = \pi r^2, \quad V = \frac{4}{3}\pi r^3, \quad \text{Fahrenheit} = \text{Celsius} \times \frac{9}{5} + 32, \\ \text{Kelvin} = \text{Celsius} + 273.15, \quad \text{Kinetic energy} = \frac{1}{2}mv^2$$