ENCP 100 WS2020

Assignment 00

ZEESHAN HOODA

01/09/20 and 2:00 P.M.

**ANSWERS FOR QUESTION 1:**

a)

Welcome to ENCP 100!

b)

d =

2.9000

c)

Fr =

18.7500

**ANSWERS FOR QUESTION 2:**

a) no output

b)

str =

'The result is:'

number =

1.2340

c)

The result is:

1.2340

d)

The result is: 1.234

e)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Robo Cleaner 2.0

Press A to start

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

f)

8.5m

g)

Using:

1) A wheel of radius: r = 0.5 [m]

2) The angular displacement: theta = 1.0472 [radians]

The distance travelled is: 0.5236

**MATLAB CODE FOR QUESTION 2:**

e)

clear all;

clc;

line = '\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*';

name = 'Robo Cleaner 2.0';

ins = 'Press A to start';

disp(line);

disp(name);

disp(ins);

disp(line);

f)

clear all;

clc;

resStr = [ num2str(countsToMetres(2500)) 'm' ];

disp(resStr);

function metres = countsToMetres(counts)

metres = counts \* 0.0034;

end

g)

clear all;

clc;

format short;

r = 0.5;

theta = 1.0472;

s = (r \* theta);

rStr = num2str(round(r, 2));

thetaStr = num2str(round(theta, 5));

resStr = sprintf('Using:\n1) A wheel of radius: r = %s [m]\n2) The angular displacement: theta = %s [radians]\n\nThe distance travelled is: %s', rStr, thetaStr, num2str(s));

disp(resStr);

**ANSWERS FOR QUESTION 3:**

a)

Please enter the base: 4.5

Please enter the length: 1

The perimeter of the rectangle is:

11

b)

Please enter the speed : 10.0

Please enter the acceleration : 0.2

Please enter the change in time: 1.0

The change in distance is:

10.1000

c)

Please enter the coefficient of Friction : 0.2

Please enter the Normal Force : 10

The friction force is:

2

**MATLAB CODE FOR QUESTION 3**

a)

clear all;

clc;

base = input('Please enter the base: ');

length = input('Please enter the length: ');

p = (2 \* base) + (2 \* length);

resStr = sprintf('\nThe perimeter of the rectangle is:\n%s', num2str(p));

disp(resStr)

b)

clear all;

clc;

v = input('Please enter the speed : ');

a = input('Please enter the acceleration : ');

t = input('Please enter the change in time: ');

s = (v \* t) + (0.5 \* a \* (t^2));

fprintf('\nThe change in distance is:\n');

disp(s);

c)

clear all;

clc;

coeff = input('Please enter the coefficient of Friction : ');

normal = input('Please enter the Normal Force : ');

fric = normal \* coeff;

fprintf('\nThe friction force is: \n');

disp(num2str(fric));