Info 3

Introduction to MATLAB

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Homework 1

Commands

1. Write the right MATLAB commands to calculate the following functions and give the obtained results

$a = 2, \quad b = 3, \quad c = -1, \quad \alpha = 60\,, \quad \beta = \pi/2$

$$E_1 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

$$E_2 = \frac{ae^{-3ab+2}}{5b}$$

$$E_3 = e^{0.05\alpha+\sqrt{a+1}} + \frac{\sin\beta}{\sqrt{|ab-10|}+5}$$

Data types

1. Based on the above workspace window, give the commands that help to create the indicated variables.

Workspace

Name	Value	Size	Class	Bytes
var1	30	1x1	int16	2
var2	30	1x1	double	8
var3	110	1x1	uint32	4
var4	'2340'	1x4	char	8
var5	0	1x1	logical	1
var6	-5.2300	1x1	single	4
var7	'int16'	1x5	char	10

Input and Output functions

1. Give the output of the following commands using MATLAB Command window.

```
>> n = input('pleas enter a name ', 's')
>> disp('University of Jijel')
>> alpha = pi; disp(cos(alpha) - 1)
>> a = 3; fprintf('La some de %d et de %.2f et %.3f \n', a , 2*a, a+2*a)
>> A = 8.321; B = 0.2; fprintf('Product of A and B is %.3f \n', A*B)
>> A = 3.231; B = 0.22; fprintf('%.2f - %.3f = %.0f \n', A, B, A-B)
```

Script file

1. Write a script to calculate the surface area of a rectangular pyramid given by:

$$Surface\ Area = \frac{1}{2}(w\sqrt{4h^2 + l^2} + l\sqrt{4h^2 + w^2})$$

where: w is the base width, l is the base length and h represents the height.

2. Using the developed script calculate the surface of the indicated pyramids below:
    1. pyramid 1: $w = 5.53, l = 3.8,\ h = 1$.
    2. pyramid 2: $w = 8.2,\ l = 10.45,\ h = 1$.
    3. pyramid 3: $w = 120,\ l = 38.22,\ h = 1$.

a. Give the appropriate commands to
    1) Save the obtained results in `PData.mat` file
    2) Save the variables of pyramid 1 in `pyramid1.mat` file
    3) Load the $Surface\ Area$ of the first pyramid from `PData.mat` file