

Callum MATLAB

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MATLAB Assessment – Callum Wallis-Evans (2426155)

1. >> x=2.0

x =

2

>> y=3.0

y =

3

(i). >> 3*x^2-2*y^3

ans =

-42

(ii). >> log(x*y)

ans =

1.7918

(iii). >> sqrt(x/y)

ans =

0.8165

(iv). >> exp(y)

ans =

20.0855

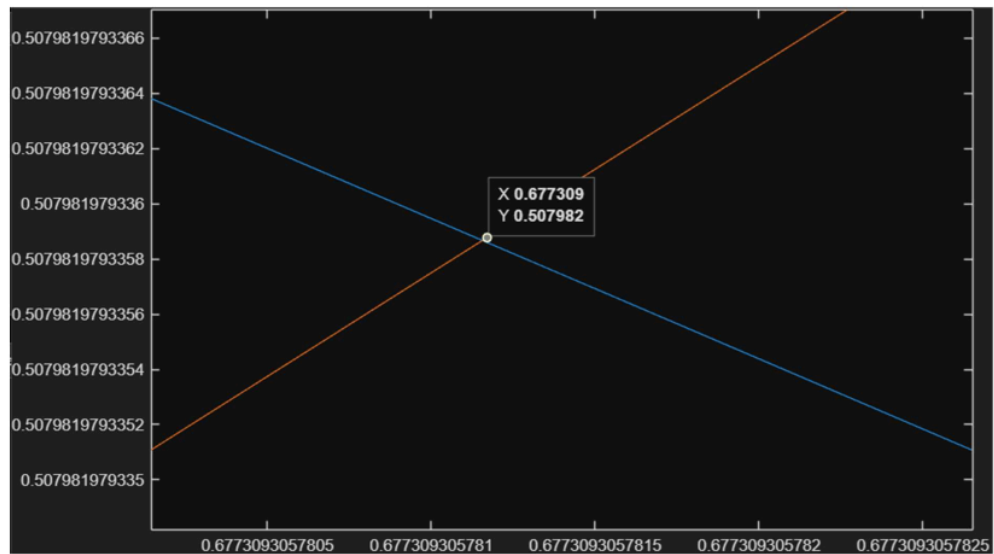
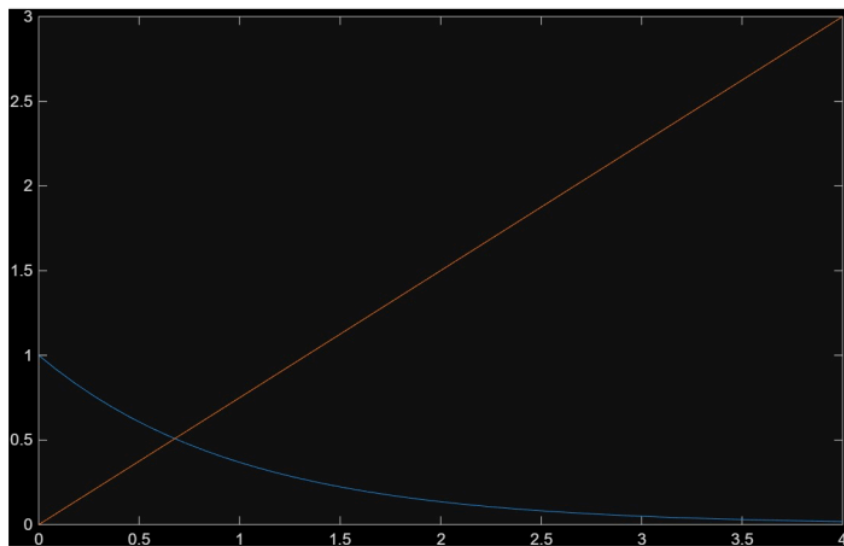
(v). >> exp(-x)+log10(y)

ans =

0.6125

```
2. >> clear all
>> fplot('exp(-x)',[0,4])
>> hold
>> fplot('0.75*x',[0,4])
```

x=0.677 y=0.508 (3d.p)



```
3. >> clear all
>> syms x
>> solve(x^3-6*x^2+11*x-6)
```

ans =

1
2
3

either $x = 1$ or $x = 2$ or $x = 3$

```
4. >> clear all
>> x=[1.0 2.0 3.0 4.0 5.0 6.0]
```

x =

1 2 3 4 5 6

```
>> y=[4.1 6.7 9.9 13.3 16.4 19.3]
```

y =

4.1000 6.7000 9.9000 13.3000 16.4000 19.3000

```
>> p=polyfit(x,y,1)
```

p =

3.1000 0.7667

```
>> y1=polyval(p,4.5)
```

y1 =

14.7167

5. >> clear all
>> syms x
>> y=sin(6*x)

y =

sin(6*x)

>> y2=diff(y,2)

y2 =

-36*sin(6*x)

>> y2+36*y

ans =

0

6. >> clear all
>> a=[2 -2 3]

a =

2 -2 3

>> b=[2 -3 2]

b =

2 -3 2

>> dot(a,b)

ans =

16

>> cross(a,b)

ans =

5 2 -2

```
7. >> clear all
>> A=[1 1 2;1 2 1;3 -1 -1]

A =

     1     1     2
     1     2     1
     3    -1    -1

>> det(A)

ans =

-11.0000

>> inv(A)

ans =

    0.0909    0.0909    0.2727
   -0.3636    0.6364   -0.0909
    0.6364   -0.3636   -0.0909
```

```
8. >> B=[4;4;1]

B =

     4
     4
     1

>> inv(A)*B

ans =

    1.0000
    1.0000
    1.0000
```

FINAL GRADE

GENERAL COMMENTS

98/100

Matlab Assessment Feedback

-

Q1 Evaluating functional expressions [10 marks]

All expressions evaluated correctly with the appropriate MATLAB functions.

[10 marks]

Q2 Plotting graphs and solving non-linear simultaneous equations [12 marks]

All correct, but a key or text would have been useful to highlight the respective graphs.

[11 marks]

Q3 Solving cubic equations [8 marks]

All correct [8 marks]

Q4 Least Squares line of best fit through a data set,
and
interpolating a value [12 marks]

All correct[12 marks]

Q5 Showing a function is a solution to a differential
equation [10 marks]

All correct [10 marks]

Q6 Finding the dot and cross product of vectors in
3D [10
marks]

All correct [10 marks]

Q7 Finding the determinant and the inverse of a 3 x
3 matrix
[10 marks]

All Correct[10 marks]

Q8 Solving a 3x3 system of simultaneous linear
equations [12
marks]

All correct, but would have been useful to assign
variables to the respective solutions i.e. $x = \text{ans}(1)$
etc.[11 marks]

Total 82/84 98%

This is a very good result Callum, very well done.
This successfully demonstrates that you have a very
sound grasp of the fundamentals of MATLAB. Very
well done!

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