

2401039 MATLAB ASSESSMENT

by Jac Cromwell

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Word count: 257

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QUESTION 1.

```
>> x = 2
```

```
x =
```

```
2
```

```
>> y = 3
```

```
y =
```

```
3
```

```
>> 3*x^2 - 2*y^3
```

```
ans =
```

```
-42
```

QUESTION 2.

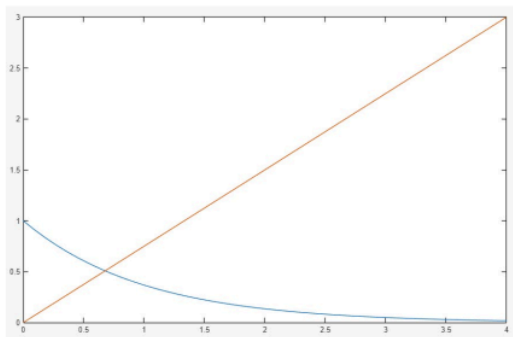
```
>> clear all
```

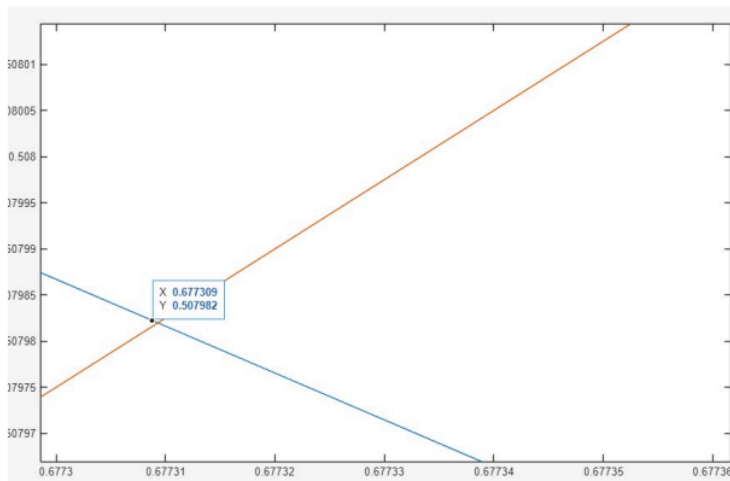
```
>> fplot('exp(-x)', [0,4])
```

```
>> hold
```

Current plot held

```
>> fplot('0.75*x', [0,4])
```





X = 0.677309 p)

Y = 507982(3dp)

QUESTION 3.

```
>> clear all
```

```
>> syms x
```

```
>> solve(x^3 - 6*x^2 + 11*x - 6)
```

ans =

1

2

3

QUESTION 4.

```
>> clear all
```

```
>> x = [1 2 3 4 5 6]
```

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

QUESTION 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
```

QUESTION 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
```

QUESTION 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
```

QUESTION 8.

>> B = [4; 4; 1]

B =

```
4
4
1
```

>> solutions = inv(A)*B

solutions =

1.0000

1.0000

1.0000

2401039 MATLAB ASSESSMENT

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

86/100

Matlab Assessment Feedback

-

Q1 Evaluating functional expressions [10 marks]

Only the first expression evaluated here but correct answer given.

[2 marks]

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

A key would be useful here or text indicating the different graphs, error in quoting the y solution also, else all correct [10 marks]

Q3 Solving cubic equations [8 marks]

All correct , but would have been good to assign the variables i.e. $x_1 = \text{ans}(1)$ etc.

[7 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 again would have been good to assign
the variables $x = \text{ans}(1)$ $y = \text{ans}(2)$ etc..

[11 marks]

Total 72/84 =86%

This is a good effort Jac, showing you have a good grasp of the fundamentals of MATLAB. Your grade would have been higher if you had completed all of question 1.

A good effort though and its use you will find in future work. All bodes well, well done!

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Comment 1

you mean from the zoom function $y=0.508$?

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