

MAE 8 – Winter 2013

Midterm

Version 1

February, 6th 2013

Instructions

Answer each question using your **iClicker**

Set the frequency code to **AB**

There will be a total of **sixteen (16) questions**

Questions are **timed**

You have **two (2) minutes** to answer **each** question

You **cannot** use a **calculator** or **computer**

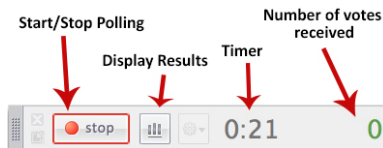
You **can** use **paper** and **pencil**

You **cannot** consult any **notes** or **books**

No communication please

Instructions

When you see:



the question is **open**: *select the best answer*

You can change your answer as many times as you want while the question is open

When you see:



the question is **closed**: *do not select answers*

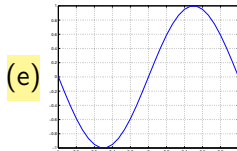
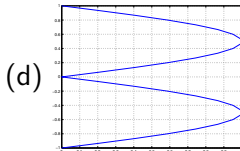
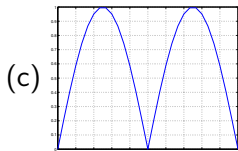
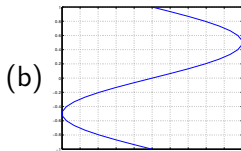
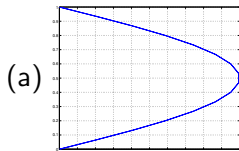
Ready?

Good luck!

Question 1

Which plot results from running the following matlab script:

```
x = linspace(-1,1,31);  
y = sin(pi*x);  
plot(x, y)  
grid
```

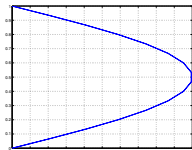


Question 2

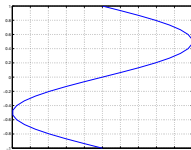
Which plot results from running the following matlab script:

```
x = linspace(-1,1,31);  
y = sin(pi*x);  
plot(y, x)  
grid
```

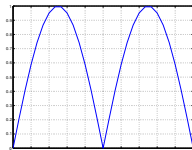
(a)



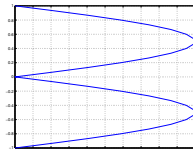
(b)



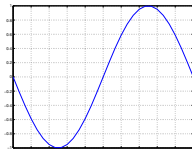
(c)



(d)



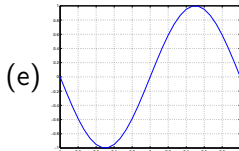
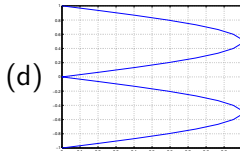
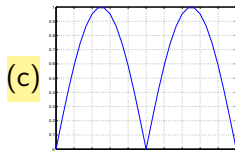
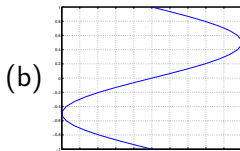
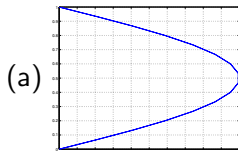
(e)



Question 3

Which plot results from running the following matlab script:

```
x = linspace(-1,1,31);  
y = sin(pi*x);  
plot(x, abs(y))  
grid
```



Question 4

Assume that the variable `m` contains the matrix:

```
m =  
    1     2     3  
    4     5     6  
    7     8     9  
   10    11    12
```

Which of the following answers is not correct?

(a)

```
>> m(2,:)
m =  
    4     5     6
```

(b)

```
>> m([2 4],[1 3])
m =  
    4     6  
   10    12
```

(c)

```
>> m(:,3)
m =  
    3  
    6  
    9  
   12
```

(d)

```
>> m([1 3],[3 1]);
m =  
    1     3  
    7     9
```

(e)

```
>> m(3,2)
m =  
    8
```

Question 5

Assume that the variable `m` contains the matrix:

```
m =  
    1     2     3  
    4     5     6  
    7     8     9  
   10    11    12
```

What is the value of `m` after you run the matlab command:

```
>> m([1 9]) = -1
```

(a)

```
m =  
   -1     2    -1  
     4     5     6  
     7     8     9  
    10    11    12
```

(b)

```
m =  
   -1     2     3  
     4     5     6  
     7     8    -1  
    10    11    12
```

(c)

```
m =  
     1     2     3  
     4     5     6  
     7     8     9  
    10    11    12
```

(d)

```
m =  
   -1     2     3  
     4     5     6  
     7     8     9  
    10    -1    12
```

(e)

```
m =  
   -1     2     3  
     4     5     6  
     7     8     9  
    10    11    12
```

Question 6

After executing the following matlab command:

```
>> m = [4 : 6; 6 : 4; -2 : -1 : -4];
```

what is the value of the variable m?

(a)

```
m =  
    4    5    6  
    6    5    4  
   -2   -3   -4
```

(b)

```
m =  
    4    -2  
    5    -3  
    6    -4
```

(c)

```
m =  
    4    6   -2  
    5    5   -3  
    6    4   -4
```

(d)

```
m =  
    4    5    6  
   -2   -3   -4
```

(e)

```
m =  
    4    5    6    6    5    4   -2   -3   -4
```

Question 7

After executing the following matlab commands:

```
>> a = [1 2 3];  
>> b = [4; 5; 6];  
>> c = [7 8 9; 10 11 12; 13 14 15];  
>> m = [a; c];
```

what is the value of the variable m?

(a) $m =$

1	2	3
7	10	13
8	11	14
9	12	15

(b) $m =$

1	7	8	9
2	10	11	12
3	13	14	15

(c) $m =$

1	2	3
7	8	9
10	11	12
13	14	15

(d) $m =$

1	7	10	13
2	8	11	14
3	9	12	15

(e) $m =$

7	8	9	1
10	11	12	2
13	14	15	3

Question 8

After executing the following matlab commands:

```
>> a = [1 2 3];  
>> b = [4; 5; 6];  
>> c = [7 8 9; 10 11 12; 13 14 15];  
>> m = [b, c];
```

what is the value of the variable m?

(a)

```
m =  
    4     7    10    13  
    5     8    11    14  
    6     9    12    15
```

(b)

```
m =  
     4     5     6  
     7     8     9  
    10    11    12  
    13    14    15
```

(c)

```
m =  
     4     5     6  
     7    10    13  
     8    11    14  
     9    12    15
```

(d)

```
m =  
     7     8     9     4  
    10    11    12     5  
    13    14    15     6
```

(e)

```
m =  
     4     7     8     9  
     5    10    11    12  
     6    13    14    15
```

Question 9

After executing the following matlab commands:

```
>> a = [1 2 3];  
>> b = [4; 5; 6];  
>> c = [7 8 9; 10 11 12; 13 14 15];  
>> m = [-1 b'; c a'];
```

what is the value of the variable m?

(a)

```
m =  
    1     2     3    -1  
    7     8     9     4  
   10    11    12     5  
   13    14    15     6
```

(b)

```
m =  
   -1     4     5     6  
    7     8     9     1  
   10    11    12     2  
   13    14    15     3
```

(c)

```
m =  
   -1     1     2     3  
    4     7     8     9  
    5    10    11    12  
    6    13    14    15
```

(d)

```
m =  
   -1     1     2     3  
    7    10    13     4  
    8    11    14     5  
    9    12    15     6
```

(e)

```
m =  
    1     2     3    -1  
    4     7     8     9  
    5    10    11    12  
    6    13    14    15
```

Question 10

How many times does the word OK is printed on the screen when you run the following matlab script:

```
for i = 1 : 7
    for j = 1 : 3
        disp('OK');
    end
end
```

- (a) 3
- (b) 7
- (c) 10
- (d) 21
- (e) 28

Question 11

How many times does the word OK is printed on the screen when you run the following matlab script:

```
for i = 1 : 7
    for j = 1 : 3
        end
        disp('OK');
    end
```

- (a) 3
- (b) 7
- (c) 10
- (d) 21
- (e) 28

Question 12

How many times does the word OK is printed on the screen when you run the following matlab script:

```
for i = 1 : 7
    disp('OK');
    for j = 1 : 3
        disp('OK');
    end
end
```

- (a) 3
- (b) 7
- (c) 10
- (d) 21
- (e) 28

Question 13

How many times does the word OK is printed on the screen when you run the following matlab script:

```
for i = 1 : 7
    for j = 1 : 3
        if ( i == 4 )
            disp( 'OK' );
        end
    end
    disp( 'OK' );
end
```

- (a) 3
- (b) 7
- (c) 10
- (d) 21
- (e) 28

Question 14

After executing the following matlab script:

```
a = 1;  
b = 2;  
m = 0;  
if ( a > b )  
    m = m + 1;  
else  
    m = m - 1;  
end
```

what is the value of the variable m?

- (a) -2
- (b) -1
- (c) 0
- (d) 1
- (e) 2

Question 15

After executing the following matlab script:

```
a = 1;  
b = 2;  
m = 0;  
if ( a > b || a ~= b )  
    m = m + 1;  
else  
    m = m - 1;  
end
```

what is the value of the variable m?

- (a) -2
- (b) -1
- (c) 0
- (d) 1
- (e) 2

Question 16

After executing the following matlab script:

```
a = 1;  
b = 2;  
m = 0;  
if ( ~m )  
    m = m + 1;  
    if ( a - b > 0 )  
        m = m + 1;  
    else  
        m = m - 1;  
    end  
elseif (m > 1)  
    m = m + 2;  
else  
    m = m - 2;  
end
```

what is the value of the variable m?

- (a) -2
- (b) -1
- (c) 0
- (d) 1
- (e) 2