

NAME : ANSWERS

1. Consider the linear system $Ax = b$, with $A = \begin{bmatrix} 3 & 4 \\ -1 & 0 \end{bmatrix}$ and $b = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$.

Give all MATLAB commands to define and solve this linear system.

Also give the solution vector x .

Answer:

```
>> a = [3 4; -1 0]
>> b = [0; 1]
>> x = a\b
```

```
-1.0000
```

```
0.7500
```

2. Give all MATLAB commands you need to make the plot of the 10-th Chebyshev polynomial defined by $y = \cos(10 \arccos(x))$.

The inverse cosine in MATLAB is implemented by the function `acos`, and is of course only defined for $x \in [-1, 1]$. Since the polynomial is oscillating, make sure to take the sampling range for x fine enough.

Answer:

```
>> x = -1:0.01:1
>> y = cos(10*acos(x))
>> plot(x,y)
```

Alternative: Bring to class on Monday the printout of the file created with diary to solve assignments 2,3 of MATLAB Lecture 1; and assignments 1,5,6 of MATLAB Lecture 2.