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ECE101
Lab 1
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Question 1

I created a vector from 1 to 100 using the x=j:k way to create a vector. Then, I created y by indexing through x from 2 to length(x) by 2's.

Output:

```
>> Question1

x =

  Columns 1 through 21

     1     2     3     4     5     6     7     8     9    10    11    12    13    14    15    16    17    18    19    20    21

  Columns 22 through 42

    22    23    24    25    26    27    28    29    30    31    32    33    34    35    36    37    38    39    40    41    42

  Columns 43 through 63

    43    44    45    46    47    48    49    50    51    52    53    54    55    56    57    58    59    60    61    62    63

  Columns 64 through 84

    64    65    66    67    68    69    70    71    72    73    74    75    76    77    78    79    80    81    82    83    84

  Columns 85 through 100

    85    86    87    88    89    90    91    92    93    94    95    96    97    98    99   100

y =

  Columns 1 through 21

     2     4     6     8    10    12    14    16    18    20    22    24    26    28    30    32    34    36    38    40    42

  Columns 22 through 42

    44    46    48    50    52    54    56    58    60    62    64    66    68    70    72    74    76    78    80    82    84

  Columns 43 through 50

    86    88    90    92    94    96    98   100
```

Question 2

I used two nested for-loops to iterate through the values of f and t, and I used double indexing to create a 2D matrix with the calculated values.

Output:

```
>> Question2

x =

    2.9850    2.9850    2.9850    2.9850    2.9850
    2.9850   -2.9850    2.9850   -2.9850    2.9850
    2.9850    2.9850    2.9850    2.9850    2.9850

>>
```

Question 3

I used a while loop to iterate by 0.01 starting from 0 to find the largest value of t that satisfies the two conditions.

Output:

```
>> Question3

t_35 =

    2.1600


t_40 =

    2.1600


t_45 =

    2.1600

>>
```

Question 4

I created a 15-element vector with values of the given function. Using this vector, I performed the max, min, and mean functions to find these values given the vector. I then used a for-loop and if statement to find which values were greater than 4.

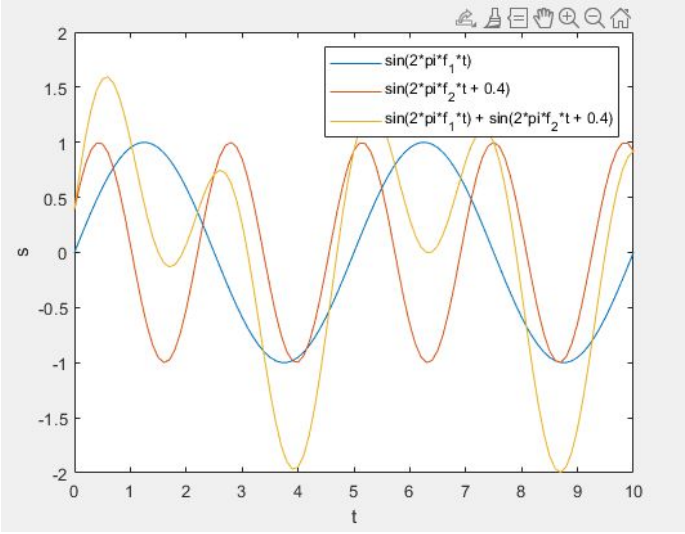
Output:

```
>> Question4

x_max =

    5.5319


x_min =

   -6.8464


x_avg =

    0.7356


xgreater4 =

    5.1313    4.7842    4.6323    5.5319    4.6485

>>
```

Question 5

I plotted the 3 functions with the specified t values using the "hold on" command to have all 3 graphs plotted on the same window. I then used the label and legend commands to label the axes and different graphs.

Output:



Question 6

I created a function MySinc based on the specifications given in the lab manual. I then plotted both graphs using the hold on command to compare the two graphs. For some reason, MySinc would not work with a normal vector so I had to use linspace in order to get it to work. However, this made the graph look pretty different from the graph of the built in sinc function. Another reason for this difference could be because of the difference between the way MySinc is defined and how the built in sinc function is defined.

Output: