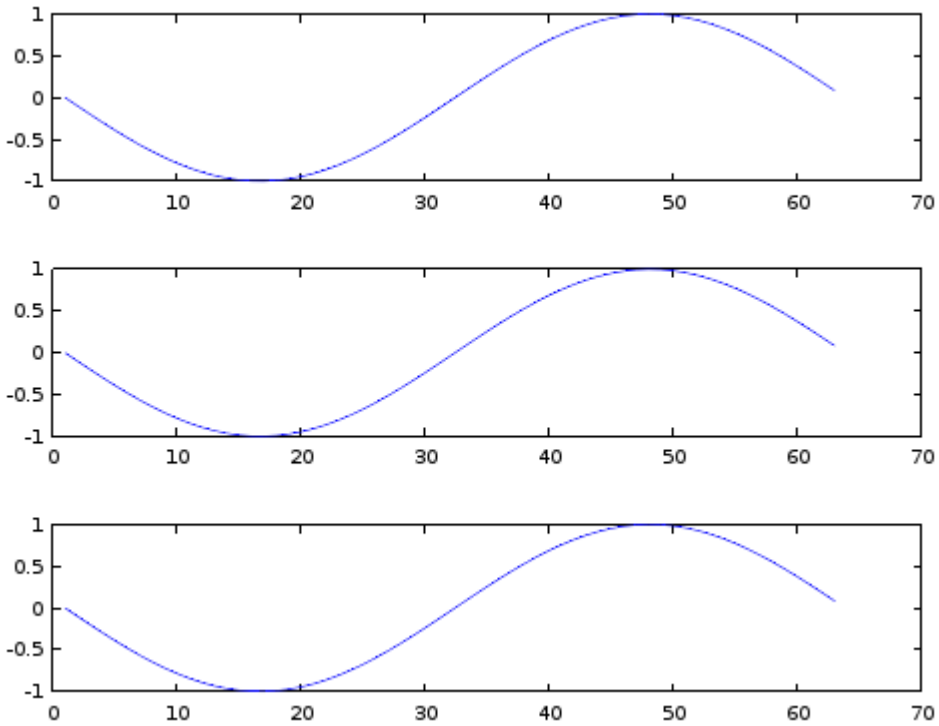
1.



a.

b. The sum for the first 7 terms for x = 1.4*pi is -0.94788.

c. It has to be 7 because we want relative true error to be less than 1%.

d. It has to be 8 because we want relative approximation error to be less than 1%.

2.

a. 2^-10 because mantissa number is 10

b. 571,632 is represented by in bits:

0 0 1001 0001110111

When we return this number to decimal again it will be:

571,5

So

Relative True Error = True Error / True Value

Relative True Error = (571,632 – 571,5)/571,632 * 100 = 0.0230 %

3.

L Z = C

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 2 & -1/2 & 1 \end{bmatrix} \begin{bmatrix} Z1 \\ Z2 \\ Z3 \end{bmatrix} = \begin{bmatrix} 0 \\ 10 \\ -11 \end{bmatrix}$$

Z1=0

Z2=10

Z3=-6

U X = C

$$\begin{bmatrix} -1 & 2 & 1 \\ 0 & 8 & 6 \\ 0 & 0 & 6 \end{bmatrix} \begin{bmatrix} X1 \\ X2 \\ X3 \end{bmatrix} = \begin{bmatrix} 0 \\ 10 \\ 6 \end{bmatrix}$$

X1 = -1

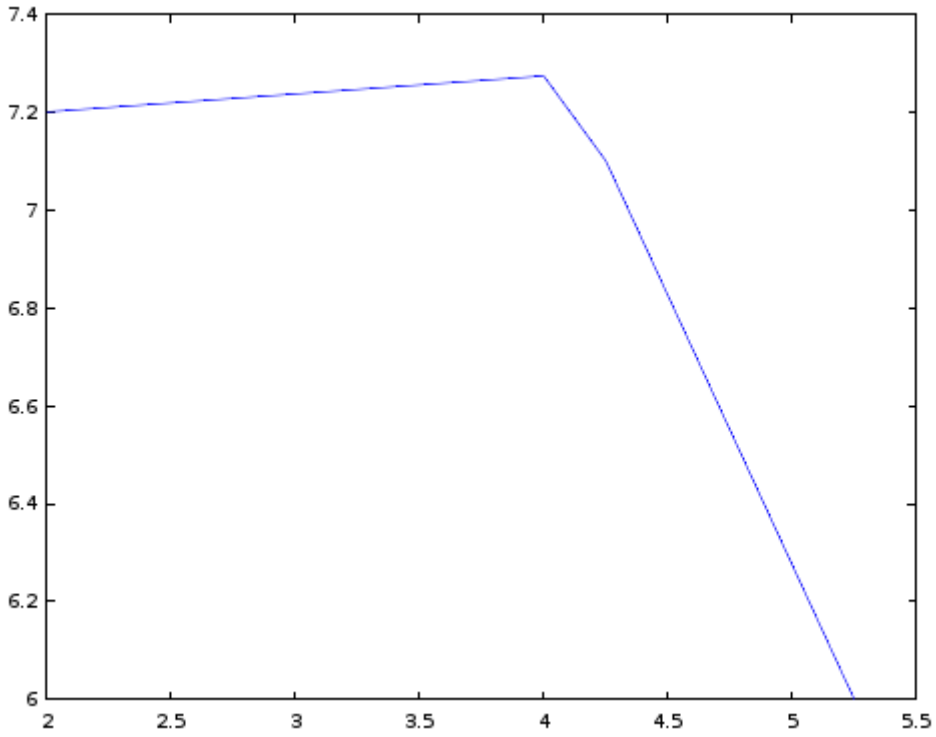
X2 = 2

X3 = -1

4.

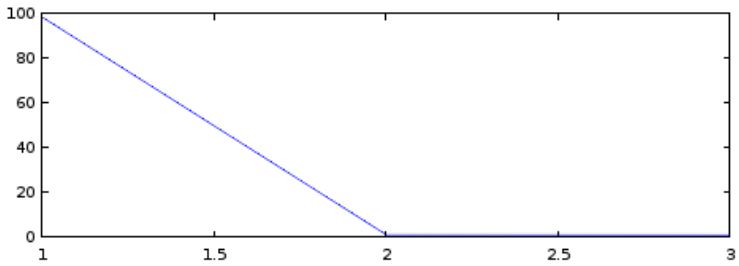
a. when x = 4 then y value is 7.2735

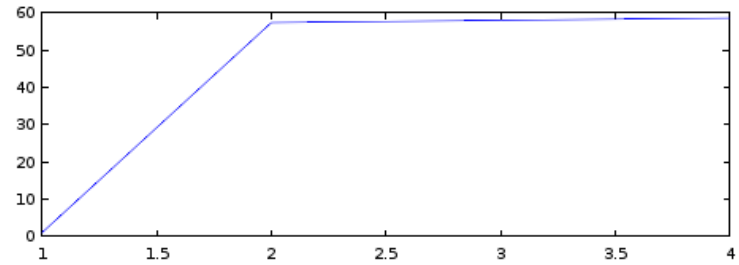
b.



5.

İter	1	2	3	4
X	1.0	57.29	57.9147	58.5244
Relative Appr. Err.	98.2545	1.0788	1.0417	


100
80
60
40
20
0
1
1.5
2
2.5
3


60
50
40
30
20
10
0
1
1.5
2
2.5
3
3.5
4