Exercise

1. Given the dataset:

   A(ideal) = {-0.17074, 0.629444, 10.1028, 34.45706, 39.47817}

   B(observed) ={0.444418, 1.306349, 10.42033, 34.5769, 40.35567}

   Compute the absolute error and related error.

2. Write a program to display an 5x5 scalar matrix with k=9.

3. $A=\begin{bmatrix}2 & 3\\ 1 & -4\\ 6 & -9\end{bmatrix}$, $B=\begin{bmatrix}-3 & 5 & 0\\ 6 & -5 & 8\end{bmatrix}$, compute $C=A\times B$

4. Compute the determinant of A, if $A=\begin{bmatrix}4 & 1 & 6 & 5\\ 2 & 4 & 3 & 6\\ 8 & -1 & -7 & -2\\ -4 & -2 & -6 & 0\end{bmatrix}$

5. Compute the inverse of A, if $A=\begin{bmatrix}1 & 0 & 9\\ 4 & -5 & -1\\ 6 & 4 & 2\end{bmatrix}$

6. If y = 4x+sin(x)-4, find the root using respectively Bisection method and Newton-Raphson method.

7. Use Newton's divided-difference method to compute f (2) from

x	3	1	5	6
$f(x)$	1	−3	2	4

8. Using respectively the trapezoidal rule and Simpson's Rule to estimate the value of the integral for $y=\int_1^2 \sin(x)dx$, with n=10.

9. Given the dataset:

   x ={0.5, 1.2, 3.6, 5.4,6.3}

   y= {0.4444, 1.3063,10.4203,34.5769,40.3556}

   Use the linear and polynomial regression to compute the straight line and polynomial equation that best fits the given data. And compute the error.