1. **Write a program to assign the following expressions to variable A and then to print out the value of A.**
2. **(3+4)/(5+6)**
3. **2**
4. **(0.0000123 + 5.67 \* ) \* 0.4567 \***

**Program:**

A= (3+4)/(5+6);

fprintf('%f \n',A);

A= 2\*pi\*pi;

fprintf('%f \n',A);

A= sqrt(2);

fprintf('%f \n',A);

A= (1.23e-5 + 5.67e-3) \* 4.567e-5;

fprintf('%d \n',A);

**Output:**

>> Variable\_Assign

0.636364

19.739209

1.414214

2.595106e-07

1. **Celsius temperature can be converted to Fahrenheit by multiplying by 9, dividing by 5, and adding 32. Assign a variable called C the value 37, and implement this formula to assign a variable F the Fahrenheit equivalent of 37 Celsius.**

**Program:**

C=37;

F= ((C\*9)/5)+32;

fprintf('%f \n',F);

**Output:**

>> Celsius\_to\_Fahrenheit

98.600000

1. **Set up a vector called N with five elements having the values: 1, 2,3,4,5. Using N, create assignment statements for a vector X which will result in X having these values:**
2. **2 , 4 , 6 , 8 , 10**
3. **½ , 1 , 3/2 , 2 , 5/2**
4. **1 , ½ , 1/3 , ¼ , 1/5**
5. **1 , ¼ , 1/9 , 1/16 , 1/25**

**Program:**

N= [1 2 3 4 5];

X= N.\*2;

disp(X);

X= N./2;

disp(X);

X= N.^-1;

disp(X);

X= (N.^2).^-1;

disp(X);

**Output:**

>> Vector\_assign

2 4 6 8 10

0.5000 1.0000 1.5000 2.0000 2.5000

1.0000 0.5000 0.3333 0.2500 0.2000

1.0000 0.2500 0.1111 0.0625 0.0400

1. **The identity matrix is a square matrix that has ones on the diagonal and zeroes elsewhere. You can generate one with the eye() function in MATLAB. Use MATLAB to find a matrix B, such that when multiplied by matrix A=[1 2 ; -1 0 ] the identity matrix I = [ 1 0 ; 0 1 ] is generated. That is A\*B=I**

**Program:**

A = [1 2; -1 0];

I = eye(2);

B = A\I; % similar to inv(A) \* I %

disp(B)

**Output:**

>> identity

0 -1.0000

0.5000 0.5000

1. **Create a 5x5 matrix of random values. From this matrix extract 3x3 sub-matrix for which only the position of central value is given.**

**Program:**

A= rand(5,5);

x= 2; % since it's 5x5 matrix, value can't be 1 or 5 %

y= 4; % since it's 5x5 matrix, value can't be 1 or 5 %

Sub = A(x-1:x+1,y-1:y+1);

disp(A);

fprintf('Extracting Sub-matrix \n');

disp(Sub);

**Output:**

>> sub\_matrix

0.4173 0.4893 0.7803 0.1320 0.2348

0.0497 0.3377 0.3897 0.9421 0.3532

0.9027 0.9001 0.2417 0.9561 0.8212

0.9448 0.3692 0.4039 0.5752 0.0154

0.4909 0.1112 0.0965 0.0598 0.0430

Extracting Sub-matrix

0.7803 0.1320 0.2348

0.3897 0.9421 0.3532

0.2417 0.9561 0.8212