OUTPUT

```
Enter a number : 442
Prime Factors : 2   13   17
```

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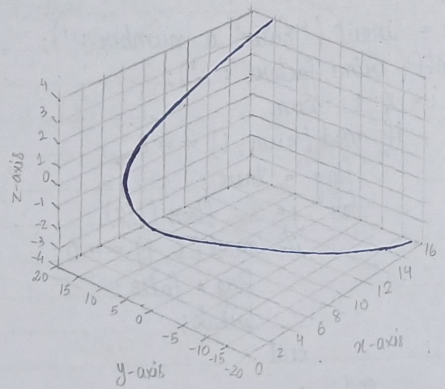
9) Write a MATLAB program to display all prime factors of a given number inserted by the user.

```
clc;
num = input ('Enter a number : ');
fprintf ('Prime factors : ');
for i = 2:1: num
    if mod (num, i) == 0
        flag = true;
        for j = 2 : floor (i/2)
            if mod ( i, j) == 0
                flag = false;
                break;
            end
        end
        if flag == true
            fprintf ('%d ', i);
        end
    end
end
```

SUCCESSFUL™

Teacher's Signature.....

OUTPUT



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Date.

Q. Write a MATLAB program to plot a 3D graph. Consider the equation $x = t^2$ and $y = 4t$ for $-4 < t < 4$

```
t = -4:0.1:4;
x = t.^2;
y = 4*t;
plot3(x,y,t);
xlabel('x-axis');
ylabel('y-axis');
zlabel('z-axis');
title('3-D graph');
grid on;
```

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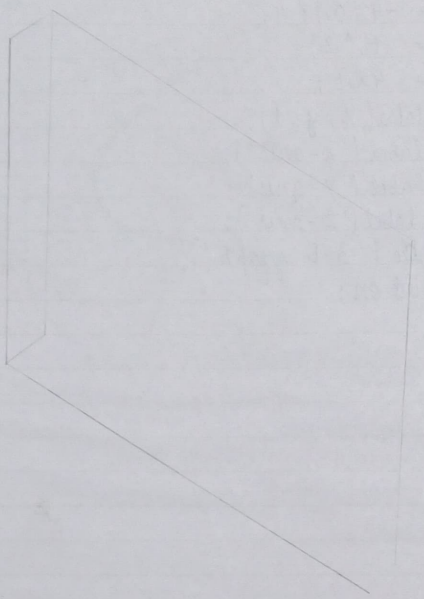
OUTPUT



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Date.

Q. Write a MATLAB program to plot 3D bar graph.

```
X = [1 3 5 6 7 10];
Y = [5 7 9 10 11 14];
bar3 (X, Y, 'g');
xlabel ('x-axis');
ylabel ('y-axis');
```

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Q. Write a MATLAB program to plot 3D pie chart

```
clc;
strength = [10, 6, 8, 9];
explode = [0, 0, 1, 0];
pie3 (strength, explode)
```

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Teacher's Signature

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OUTPUT

X =

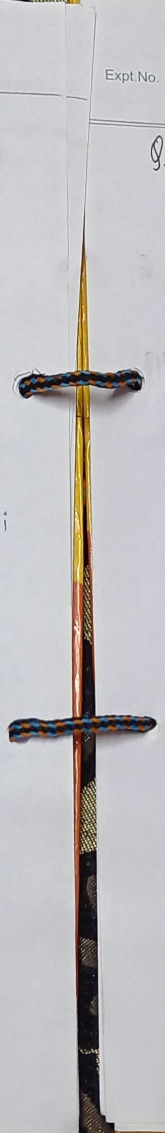
0.8147 0.9058 0.1270
0.9134 0.6324 0.0975

Y =

0.1576 0.9706 0.9572
0.4854 0.8003 0.1419

A =

0.1576 + 0.8147i 0.9706 + 0.9058i 0.9572 + 0.1270i
0.4854 + 0.9134i 0.8003 + 0.6324i 0.1419 + 0.0975i



9. Consider a matrix containing complex number Exchange real and imaginary part for each complex number in the matrix.

```
clc;
A = [ 0.8147 + 0.1576i , 0.9058 + 0.9706 i,
      0.1270 + 0.9572i, 0.9134 + 0.4854 i,
      0.6324 + 0.8003i, 0.0975 + 0.1419 i ];
X = real(A)
Y = imag(A)
a = X;
X = Y;
Y = a;
A = X + i * Y
```

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Date

OUTPUT

Unsorted Array :

arr =

21 3 46 48 25 25 17 46 19 6

Sorted Array :

3 6 17 19 21 25 25 46 46 48

Duplicate elements : 25 46

No. of duplicate elements : 2

8. Create an array of 10 random elements and sort the elements by bubble sort algorithm. Also find the duplicate elements in the array.

```
fprintf('Unsorted Array :');
arr = randi([1,50], 1, 10)
n = length(arr);
% Bubble sort
for i = 1:1:n-1
    for j = 1:1:n-1
        if arr(j) > arr(j+1)
            temp = arr(j);
            arr(j) = arr(j+1);
            arr(j+1) = temp;
        end
    end
end
fprintf('Sorted Array : \n');
disp(arr);
% Duplicate elements
count = 0;
fprintf('Duplicate elements: ');
for i = 1:1:n-1
    for j = i+1:1:n-1
        if arr(i) == arr(j)
            count = count + 1;
```

Teacher's Signature .....

```
            fprintf('%d', arr[i]);
        end
    end
end
fprintf('\n');
fprintf('No. of duplicate elements : ');
disp(count);
```

OUTPUT

A =

1	5	7
2	6	3
8	9	4

B =

2	1	5
3	8	4
6	9	7

E =

2	5	35
6	48	12
48	81	28

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Q. Create two matrices of 3×3 dimension and find the element by element multiplication of the matrices.

```
clc;
A = [1 5 7; 2 6 3; 8 9 4]
B = [2 1 5; 3 8 4; 6 9 7]
E = A.*B
```

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OUTPUT

```
A =
     3     4
     5     6

X =
     1
     2

B =
     3     4     1
     5     6     2
```

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Q Write a MATLAB program to append a column to a matrix

```
clc;
A = [3 4 ; 5 6]
X = [1 ; 2]
B = [A X]
```

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OUTPUT

```
A =
     3     4
     5     6

Y =
     9     7

B =
     3     4
     5     6
     9     7
```

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Q. Write a MATLAB program to append a row to a matrix.

```
clc;
A = [3 4; 5 6]
Y = [9 7]
B = [A; Y]
```

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OUTPUT

```
M =
     6     7     1
     8     9     2

M =
     8     9     2
```

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Date.

Q. Write a MATLAB program to delete a row from a matrix

```
clc;
M = [6 7 1; 8 9 2]
M(1,:) = [];
fprintf('M = \n');
disp(M);
```

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OUTPUT

```
M =
     6     7     1
     8     9     2

M =
     1
     2
```

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Date.

Q. Write a MATLAB program to delete a column from a matrix

```
clc;
M = [6 7 1; 8 9 2]
M(:, 1:2) = [];
fprintf('M = \n');
disp(M);
```

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Teacher's Signature.....