ASSIGNMENT: 4

1. Write a script file in MATLAB to solve the following problem.
   - I. Arnold buys three apples, a dozen bananas, and one watermelon for Rs. 72.36.
   - II. Deepika buys a dozen apples and two watermelon for Rs. 115.26.
   - III. Uttam buys two bananas and three watermelon for Rs. 42.77.
   - IV. How much do single pieces of each fruit cost?

mat1.m

```
A = [3, 12, 1;    % Coefficients of apples, bananas, and watermelons in the first equation
     12, 0, 2;    % Coefficients in the second equation
     0, 2, 3];    % Coefficients in the third equation

B = [72.36;       % Right-hand side of the first equation
     115.26;      % Right-hand side of the second equation
     42.77];      % Right-hand side of the third equation

% Solve the system of equations: A * [a; b; w] = B
costs = A \ B;

% Display the results
disp('Cost of one apple (a): Rs. ');
disp(costs(1));

disp('Cost of one banana (b): Rs. ');
disp(costs(2));

disp('Cost of one watermelon (w): Rs. ');
disp(costs(3));
```

mmand Window

ew to MATLAB? See resources for Getting Started.

```
Cost of one apple (a): Rs.
    7.5757

Cost of one banana (b): Rs.
    3.1214

Cost of one watermelon (w): Rs.
   12.1757
```

2. Write a program to solve linear equations:
   - i. 15x = 5y-8z
   - ii. 9y+3z = x+6
   - iii. 10x+4y-z = 7

mat1.m mat2.m

```
A2 = [15, -5, 8;
      -1, 9, 3;
      10, 4, -1];

B2 = [0;
      6;
      7];

solution = A2 \ B2;

% Display the results
disp('Solution for x, y, z:');
disp(['x = ', num2str(solution(1))]);
disp(['y = ', num2str(solution(2))]);
disp(['z = ', num2str(solution(3))]);
```

Command Window

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```
Cost of one watermelon (w): Rs.
   12.1757

>> mat2
Solution for x, y, z:
x = 0.36881
y = 0.7764
z = -0.20627
>>
```