

Matlab Tutorial #1
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Question 1:

Liz buys three apples, a dozen bananas, and one cantaloupe for \$2.36. Bob buys a dozen apples and two cantaloupe for \$5.26. Carol buys two bananas and three cantaloupe for \$2.77. How much do single pieces of each fruit cost?

hw1_q1.m:

```
clear, clc, close all
format short, format compact
```

```
A = [3 12 0; 12 0 2; 1 2 3];
b = [2.36; 5.26; 2.77];
X = inv(A) * b;
```

```
fprintf(" Apple = $%.2f \n Banana = $%.2f \n Cantaloupe = $%.2f\n",
X(1),X(2), X(3));
```

Results

```
Apple = $0.32
Banana = $0.12
Cantaloupe = $0.74
```

Question 2:

Write a function file that converts temperature in degrees Fahrenheit (°F) to degrees Centigrade (°C). Use input and fprintf commands to display a mix of text and numbers. Recall the conversion formulation, $C = 5/9 * (F - 32)$.

Fahr2Cels.m:

```
%This function will convert from Fahrenheit to Celcius
function[Celcius] = Fahr2Cels(Fahr)
```

```
F = Fahr;
Celcius = (5/9)*(F - 32);
```

hw1_q2.m:

```
clear, clc, close all
format short, format compact
```

```
Fahr = input('Enter the temperature in °F: ');
Cels = Fahr2Cels(Fahr);
```

```
fprintf("%d°F is %.0f°C.\n", Fahr, Cels);
```

Results

Enter the temperature in °F: 103

103°F is 39°C.

Question 3:

Write a user-defined MATLAB function, with two input and two output arguments that determines the height in centimeters (cm) and mass in kilograms (kg) of a person from his height in inches (in.) and weight in pounds (lb).

(a) Determine in SI units the height and mass of a 5 ft.15 in. person who weight 180 lb.

(b) Determine your own height and weight in SI units

bodyConversion.m:

%This function will convert from one SI unit to another

```
function [in, lb] = bodyConversion(cm, kg)
```

```
    in = cm * 2.54;
```

```
    lb = kg / 2.205;
```

hw1_q3.m:

%Prompts user to enter inputs

```
height = input('Enter height (in.): ');
```

```
mass = input('Enter mass (lb.): ');
```

%Calls function to do conversion

```
[cm, kg] = bodyConversion(height, mass);
```

```
fprintf("\nA person who is %d in. long and weighs %d lb.\n", height, mass);
```

```
fprintf("is %.2f cm. long and weighs %.2f kg.\n", cm, kg);
```

Results

Enter height (in.): 75

Enter mass (lb.): 180

A person who is 75 in. long and weighs 180 lb.

is 190.50 cm. long and weighs 81.63 kg.

Enter height (in.): 67

Enter mass (lb.): 125

A person who is 67 in. long and weighs 125 lb.

is 170.18 cm. long and weighs 56.69 kg.