

1 Problem 1

```
clear;clc;

% Utilizing num2str command for a nice output

prompt = 'Please assign a number for x = ';
x = input(prompt);

y = ['sin(x) = ',num2str(sin(x))];
disp(y);

y = ['cos(x) = ',num2str(cos(x))];
disp(y);

y = ['sqrt(x) = ',num2str(sqrt(x))];
disp(y);

y = ['abs(x) = ',num2str(abs(x))];
disp(y);

y = ['exp(x) = ',num2str(exp(x))];
disp(y);

y = ['log(x) = ',num2str(log(x))];
disp(y);

y = ['log10(x) = ',num2str(log10(x))];
disp(y);
```

2 Problem 2

```
clear;clc;
```

```
% Asking the user to input ARRAYS, would be more user friendly to ask for  
% each individual height then have the code input the values into an array
```

```
prompt = 'Enter the 3 heights starting with triangle 1 in brackets with spaces inbetween:';  
Heights = input(prompt);
```

```
prompt = 'Enter 3 base lengths starting with triangle 1 in brakcets with spaces inbetween:';  
BaseLengths = input(prompt);
```

```
% Utilizing matrix operations  
Areas = (BaseLengths.*Heights)*.5;
```

```
% Could display Area1 = ..., Area2 = ..., Area3 = ... instead of just the 3  
% values
```

```
disp(Areas);
```

3 Problem 3

```
clear;clc;

% Giving the user some information about what is expected from the inputs
disp ('Velocity is in units of m/s');
disp ('Theta is in degrees');
disp ('Time is in seconds');
disp ('Acceleration due to gravity is in m/s^2');
disp ('Position of cannon ball in meters');

% User inputs
prompt = 'Enter a value for the initial velocity V0: ';
V0 = input(prompt); % m/s

prompt = 'Enter value for theta: ';
Theta = input(prompt); % radians

% Initializing
Time = 0:.1:10; % sec
g = 9.8; % m/s^2

% Calcs
x = ((V0)*(cos((Theta*pi)/180))*Time);
y = (V0)*(sin((Theta*pi)/180))*Time - (.5)*(g)*(Time.^2);

% Displays
disp ('    Time(s)    x(m)    y(m)');
disp([Time',x',y']) % notice the '

% Crude way to create a table
% Why not just use the table(...) command from MatLab?
% T = table(Time',x',y')
% However, now you would need to figure out how to properly name the table
% headings as the default headings are Var1, Var2, Var3

% How would I be able to check when y = 0 so I can stop the code at this
% value of t?
```

4 Problem 4

```
clear;clc;

% Initializing
disp('Value of x is in radians');
x = 0:.1*pi:2*pi;

% Calculations
A = cos(x);
B = sin(x);

% Display
disp('      x      cos(x)   sin(x)');
disp([x',A',B']) % notice the '

% Why not just use the table(...) command from MatLab?
% T = table(x',A',B')
% However, now you would need to figure out how to properly name the table
% headings as the default headings are Var1, Var2, Var3
```

5 Problem 5

```
clear;clc;

Matrix_1 = [99,58,87,78,100,100,91,93,78,66];

Mean = mean(Matrix_1);
disp('Mean ='), disp(Mean);

Standard_Deviation = std(Matrix_1);
disp('Standard_Deviation ='), disp(Standard_Deviation);

Minimum_Value = min(Matrix_1);
disp('Minumum_Value ='), disp(Minimum_Value);

Maximum_Value = max(Matrix_1);
disp('Maximum_Value ='), disp(Maximum_Value);

Number_of_Scores = numel(Matrix_1);
disp('Number_of_Scores ='), disp(Number_of_Scores);

% Wouldn't a table with the values be a much nicer output...
```