

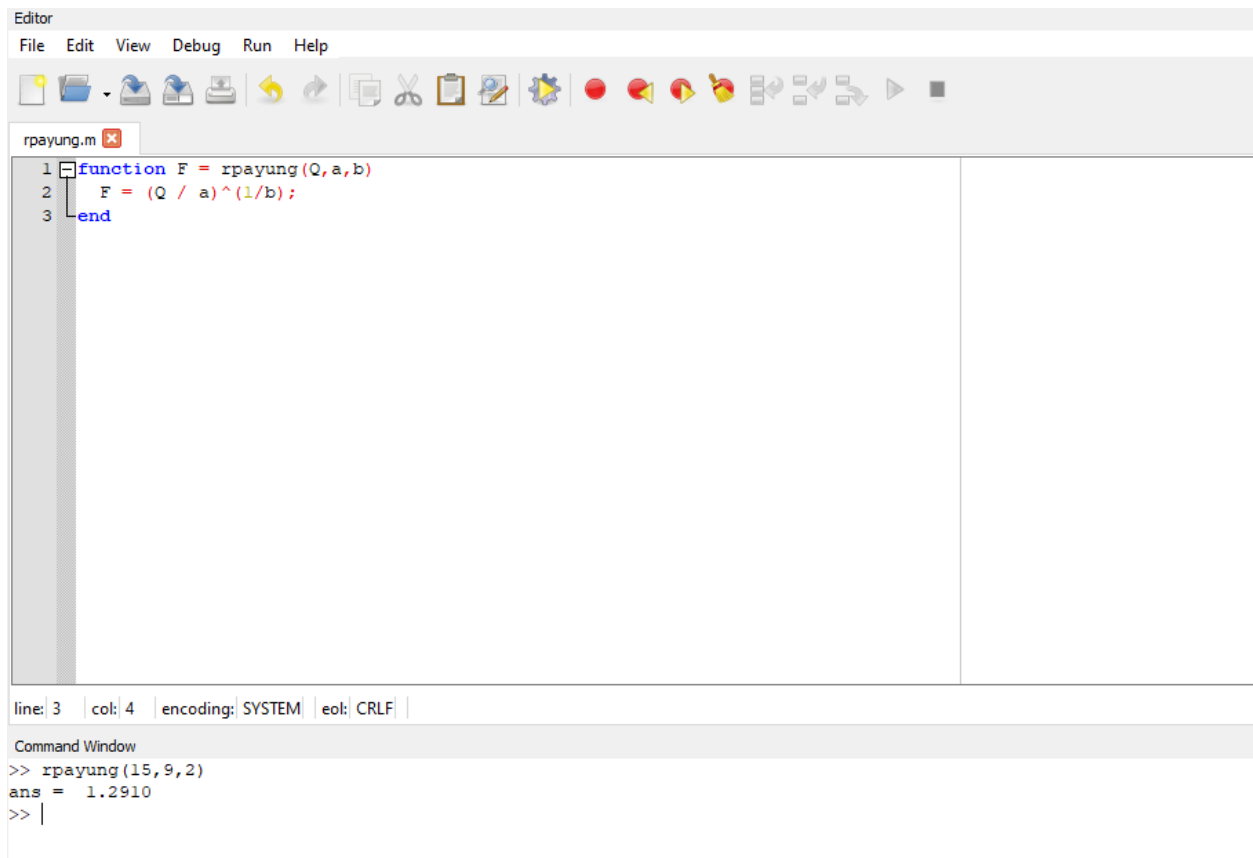
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CDS 130

WA05

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Part 1:



The image shows a MATLAB development environment. The top section is the 'Editor' window, which contains a script named 'rpayung.m'. The script defines a function 'F = rpayung(Q,a,b)' with the formula $F = (Q / a)^{(1/b)}$. The bottom section is the 'Command Window', which shows the execution of the function with the command 'rpayung(15,9,2)' resulting in 'ans = 1.2910'.

```
1 function F = rpayung(Q,a,b)
2     F = (Q / a)^(1/b);
3 end
```

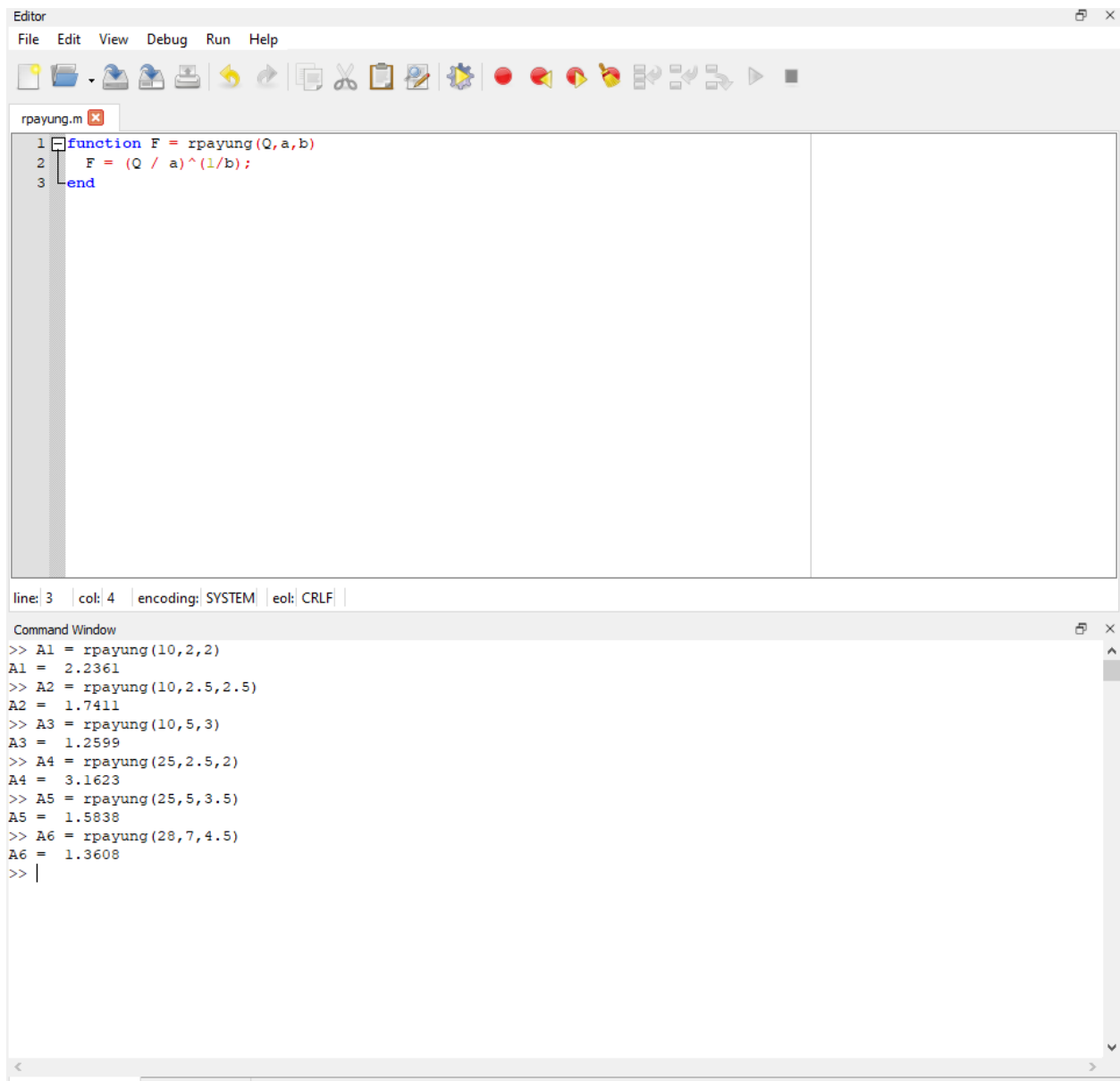
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Command Window

```
>> rpayung(15,9,2)
ans = 1.2910
>> |
```

I created a function that would allow me to just simply input the values and get a result.

Part 2:



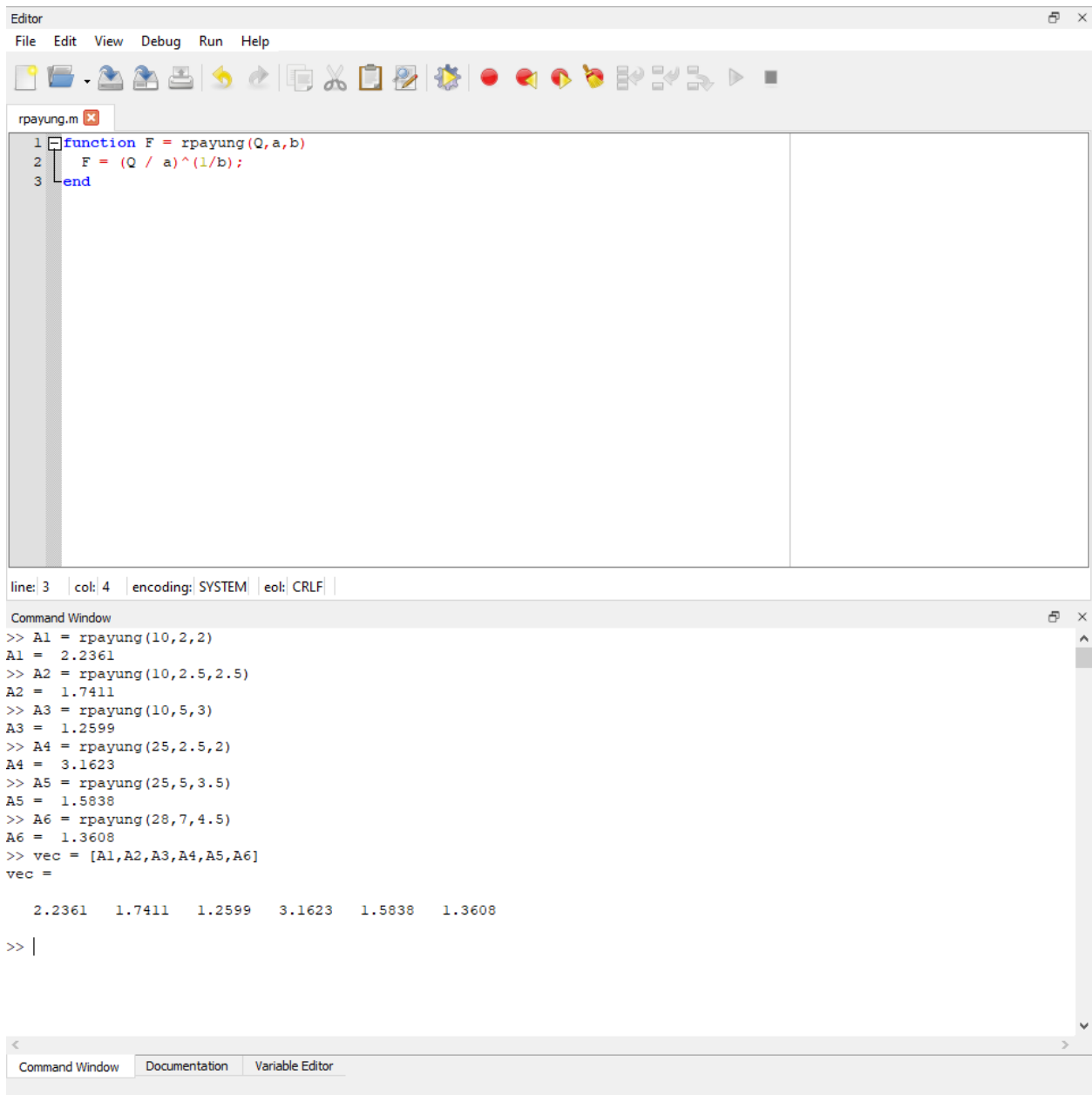
The image shows a MATLAB environment with two windows. The top window is the Editor, displaying a function named `rpayung` in a file named `rpayung.m`. The function has three arguments: `Q`, `a`, and `b`. The function body consists of two lines: `F = (Q / a)^(1/b);` and `end`. The bottom window is the Command Window, showing a series of commands and their outputs. The commands are: `A1 = rpayung(10,2,2)`, `A2 = rpayung(10,2.5,2.5)`, `A3 = rpayung(10,5,3)`, `A4 = rpayung(25,2.5,2)`, `A5 = rpayung(25,5,3.5)`, and `A6 = rpayung(28,7,4.5)`. The outputs are: `A1 = 2.2361`, `A2 = 1.7411`, `A3 = 1.2599`, `A4 = 3.1623`, `A5 = 1.5838`, and `A6 = 1.3608`.

```
1 function F = rpayung(Q,a,b)
2     F = (Q / a)^(1/b);
3 end
```

```
>> A1 = rpayung(10,2,2)
A1 = 2.2361
>> A2 = rpayung(10,2.5,2.5)
A2 = 1.7411
>> A3 = rpayung(10,5,3)
A3 = 1.2599
>> A4 = rpayung(25,2.5,2)
A4 = 3.1623
>> A5 = rpayung(25,5,3.5)
A5 = 1.5838
>> A6 = rpayung(28,7,4.5)
A6 = 1.3608
>> |
```

I set the variables A1:6 to be equal to the result of the function at different values.

Part 3:



The image shows a MATLAB development environment. The Editor window displays a function named `rpayung` defined in `rpayung.m`. The function takes three inputs: `Q`, `a`, and `b`, and returns the value of $F = (Q / a)^{(1/b)}$. The Command Window shows the execution of the function with various inputs, resulting in a vector of values.

```
1 function F = rpayung(Q,a,b)
2     F = (Q / a)^(1/b);
3 end
```

line: 3 | col: 4 | encoding: SYSTEM | eol: CRLF |

Command Window

```
>> A1 = rpayung(10,2,2)
A1 = 2.2361
>> A2 = rpayung(10,2.5,2.5)
A2 = 1.7411
>> A3 = rpayung(10,5,3)
A3 = 1.2599
>> A4 = rpayung(25,2.5,2)
A4 = 3.1623
>> A5 = rpayung(25,5,3.5)
A5 = 1.5838
>> A6 = rpayung(28,7,4.5)
A6 = 1.3608
>> vec = [A1,A2,A3,A4,A5,A6]
vec =

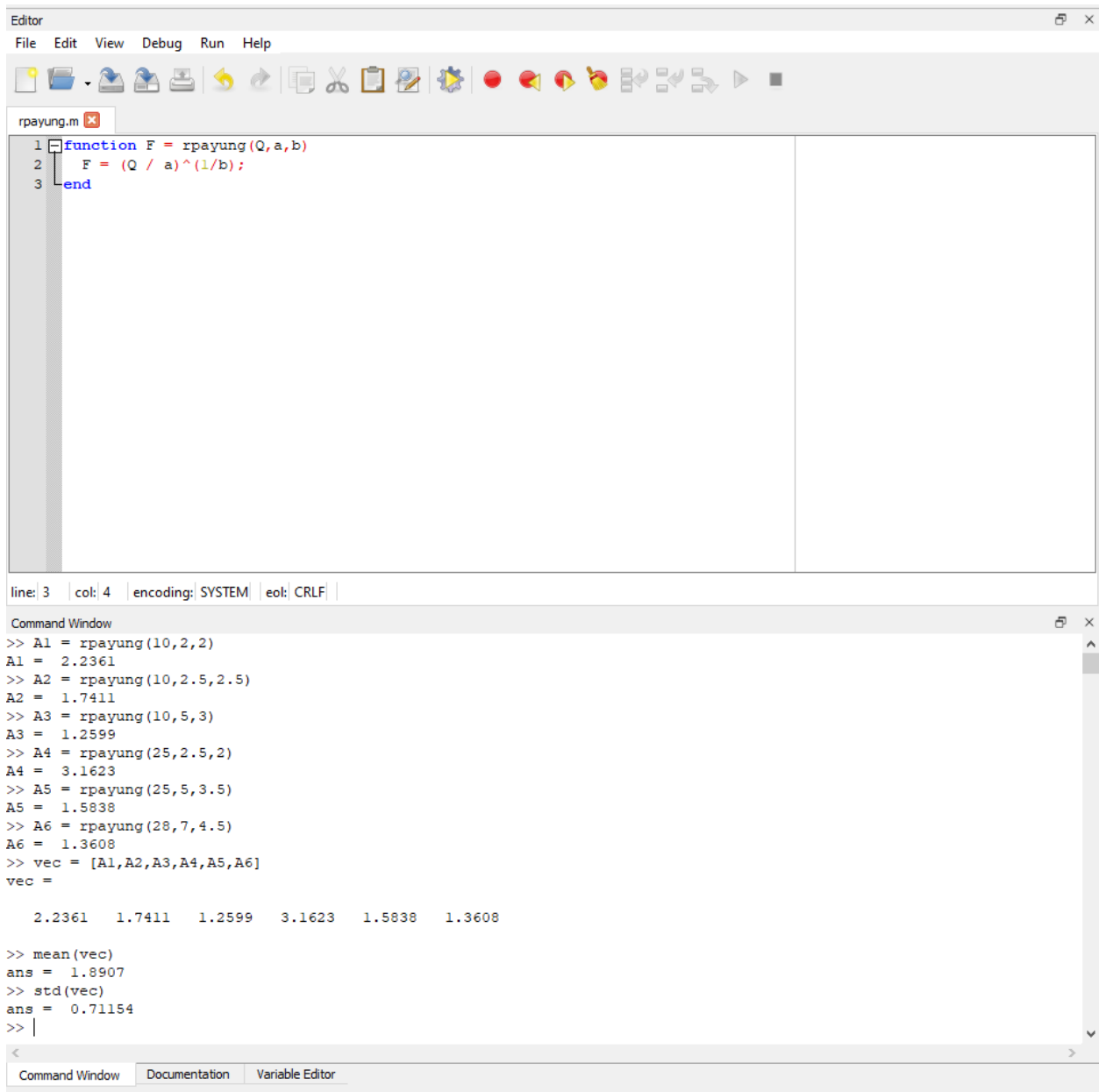
    2.2361    1.7411    1.2599    3.1623    1.5838    1.3608

>> |
```

Command Window | Documentation | Variable Editor

As you can see, I created the vector using the function as my inputs.

Part 4:



The image shows a MATLAB development environment. The top window is the 'Editor' for a file named 'rpayung.m'. It contains a function definition:

```
1 function F = rpayung(Q,a,b)
2     F = (Q / a)^(1/b);
3 end
```

The status bar at the bottom of the editor indicates 'line: 3 col: 4 encoding: SYSTEM eol: CRLF'. Below the editor is the 'Command Window' with the following session:

```
>> A1 = rpayung(10,2,2)
A1 = 2.2361
>> A2 = rpayung(10,2.5,2.5)
A2 = 1.7411
>> A3 = rpayung(10,5,3)
A3 = 1.2599
>> A4 = rpayung(25,2.5,2)
A4 = 3.1623
>> A5 = rpayung(25,5,3.5)
A5 = 1.5838
>> A6 = rpayung(28,7,4.5)
A6 = 1.3608
>> vec = [A1,A2,A3,A4,A5,A6]
vec =

    2.2361    1.7411    1.2599    3.1623    1.5838    1.3608

>> mean(vec)
ans = 1.8907
>> std(vec)
ans = 0.71154
>> |
```

At the bottom, there are tabs for 'Command Window', 'Documentation', and 'Variable Editor', with 'Command Window' being the active tab.

Mean of the vector I created: 1.8907, Standard Deviation: 0.71154.

Part 5:

```
Command Window
A1 = 2.2361
>> A2 = rpayung(10,2.5,2.5)
A2 = 1.7411
>> A3 = rpayung(10,5,3)
A3 = 1.2599
>> A4 = rpayung(25,2.5,2)
A4 = 3.1623
>> A5 = rpayung(25,5,3.5)
A5 = 1.5838
>> A6 = rpayung(28,7,4.5)
A6 = 1.3608
>> vec = [A1,A2,A3,A4,A5,A6]
vec =

    2.2361    1.7411    1.2599    3.1623    1.5838    1.3608

>> mean(vec)
ans = 1.8907
>> std(vec)
ans = 0.71154
>> plot(vec)
>> |
```

