Exercise 1

(i) Write a MATLAB script Square.m that computes for $a = 2$ and $b = 3$ the size of the area of a square with side lengths $a$ and $b$.

(ii) Initialize the variables $a$ and $b$ in the script and shift the area computation to a function area.m with input variable $a$, $b$.

(iii) Add a third variable $c$ to your function input. If $c < 0$, compute the size of the square area, if $c > 0$, compute the volume of the cuboid with side lengths $a$, $b$ and $c$, for $c = 0$ print a warning on the display and exit the function with value -100. Add $c$ in your script and test your function.

(iv) Compute for $a = 2$, $b \in [0, 100]$, $c = 2$ the corresponding function values and plot them (with correct x-axis and dots marking the computed values).

(v) If you used a for-loop before, get rid of it by vectorisation.
Exercise 2 Write down the output of the following short scripts (without using your computer!).

```plaintext
1 a=[1;2;3;4];
2 b=a+i*a;

1 A=[1 2 3; 4 5 6; 7 8 9];
2 i=find(A>5);
3 [r,c]=find(A>5);

1 x = 1;
2 while ( x <= 5 )
3 x = x + 1;
4 disp(['The value of x is:', int2str(x)])
5 end
6 disp(['The last value of x is:', int2str(x)])

1 for k = 1:10
2   if ( k == 7 ), break, end
3   if ( k == 3 ), continue, end
4   disp(['The value of k is:', int2str(k)])
5 end
6 disp(['The last value of k is:', int2str(k)])

1 for k = 1:10
2   switch ( k )
3     case 1
4       disp('The value of k is: 1')
5     case {2,3}
6       disp('The value of k is: 2 or 3')
7     case {5}
8       disp('The value of k is: 5')
9     otherwise
10       disp('The value of k is neither 1 nor 2, 3 or 5.')
11 end
12 end
```
Exercise 3 Correct the code (without using your computer!).

```matlab
function C=MatrixProdukt(A,B);
for i = 1:size(A,1)
    for j = 1:size(B,2)
        C(i,j) = C(i,j) + A(i,:) .* B(:,j);
    end
end
```

Exercise 4 Write a function that reads in an integer $N > 0$ and then finds the first $N$ primes.