MATLAB Memory:

Variables
Functions

Variables:

Scalar
Vector
Matrix (vector)

```
>> A = 10;
>> B = zeros(1,A);
>> C = zeros(A,1);
>> D = zeros(A,A);
>> E = zeros(A,A,A);
>>
>> whos
  Name        Size                                Bytes  Class

  A           1x1                                     8  double array
  B           1x10                                   80  double array
  C           10x1                                   80  double array
  D           10x10                                 800  double array
  E           10x10x10                             8000  double array

Grand total is 1121 elements using 8968 bytes

>>
```
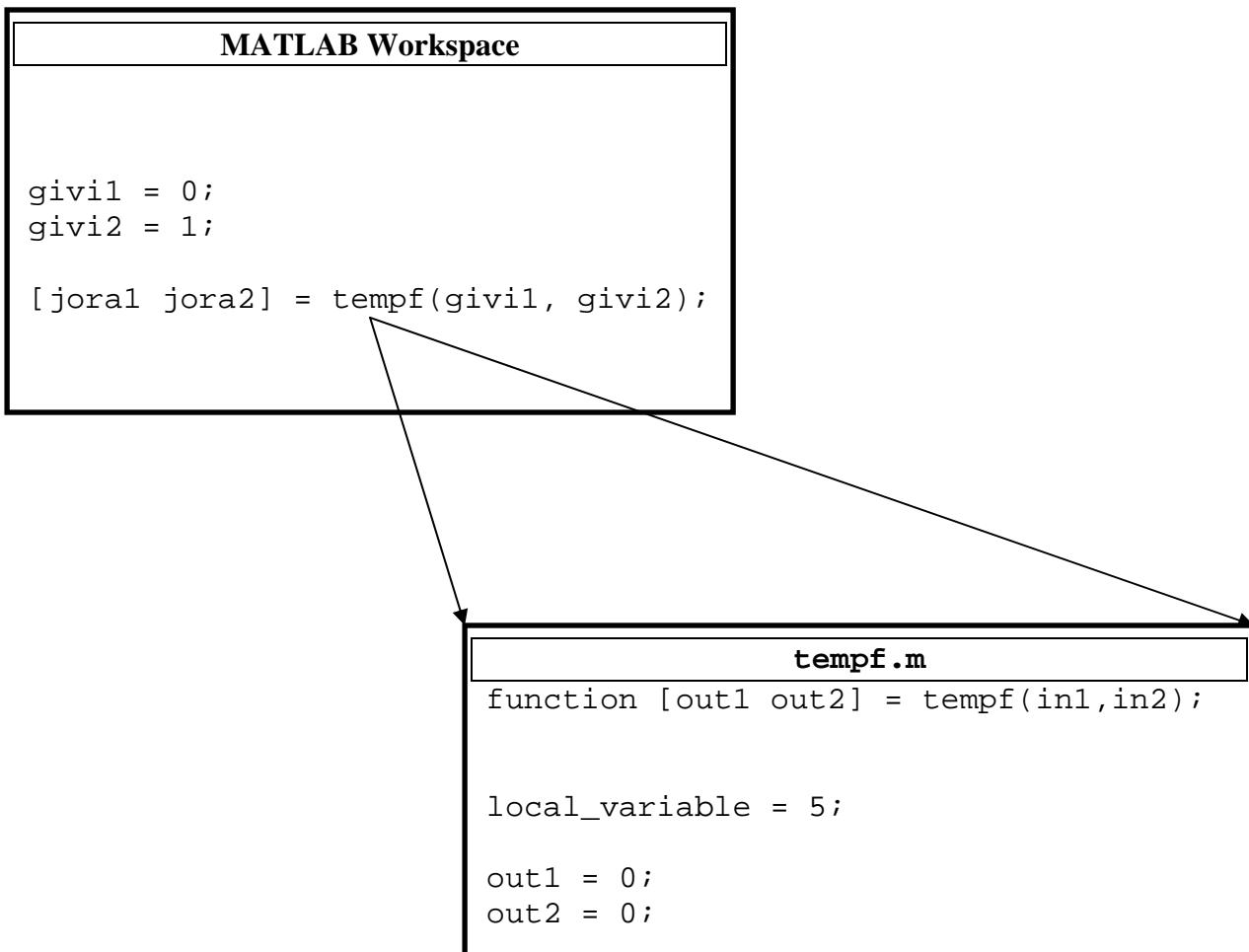
Output

```
>> A = zeros(1,10);
>> B = zeros(1,10)

B =

     0     0     0     0     0     0     0     0     0     0

>>
```

```
>> clear      % CLEAR VARIABLES
>> clear all % CLEAR VARIABLES AND FUNCTIONS
```

Using Functions

```
MATLAB Workspace



givi1 = 0;
givi2 = 1;

[jora1 jora2] = tempf(givi1, givi2);
```

```
tempf.m
function [out1 out2] = tempf(in1,in2);


local_variable = 5;

out1 = 0;
out2 = 0;
```

Arithmetic operations

```
>> A = 10;
>> B = zeros(1,A);
>> C = zeros(A,1);
>> D = zeros(A,A);
>> E = zeros(A,A,A);
>>
>>
>>
>> A1 = A + 5 + A*5 + A/5 + A^5 + sin(A);
>> % SCALAR OPERATIONS
>>
>> B1 = B + B*5 + B.*B + B./B + B.^5 + sin(B);
>> % VECTOR OPERATIONS
>>
>> C1 = C + B';
>> % TRANSPOSE
>>
>>
>>
```

Logics

sample.m

```
for ind = 1:10,
    T(ind)=ind;
    Blabla=1;
    Blabla=2;
end
```

Graphics

plotting.m

```
for ind=1:10,
    T(ind)=ind;
end

figure(1);
plot(T,sin(T));
```

Check:

plot /

subplot
xlabel
ylabel

hold on / hold off

comet

Plot:

x=(0.1:0.1:10);   % vector of 0.1->10 with step 0.1

```
sin(x)/x      (red)
x^3           (blue)
x^2           (green)
```

on single plot;

Function:

phases.m
```
function [a1 a2] = phases(x);


a1 = sin(0.9*x);
a2 = cos(1.1*x);
```

write pirveli.m that will:

  1. x=(0:0.1:10);
  2. plot a1(x), a2(x) on single plot, figure(1);
  3. plot a1(a2), a2(a1) on subplot(1,2,1) and
     subplot(2,1,2) of figure(2);
  4. figure(3): animation a1(a2) with comet.