

9LAB 2 - Your Name - MAT 275

Exercise 1

Part (a)

```
%-----%  
A = [-6 8 -3; 9 -4 -1; -1 -5 4];  
B = [-5 -4 14; 19 -4 6; -4 -1 9];  
b = [-8; 2; 15];  
c = [3 4 -2];  
d = [1; -3; -2];  
%-----%
```

A*B

```
ans = 3x3  
    194    -5   -63  
   -117   -19    93  
   -106    20    -8
```

B*A

```
ans = 3x3  
   -20   -94    75  
  -156   138   -29  
     6   -73    49
```

c*A

```
ans = 1x3  
    20    18   -21
```

B*d

```
ans = 3x1  
   -21  
    19  
   -19
```

Part (b)

```
C = [A;B];  
D = [B d];
```

Part (c)

```
x = A\b;
```

Part (d)

```
A(2,3) = 0;
```

Part (e)

```
a = A(2,:);
```

Part (f)

```
B(:,3) = [];
```

Exercise 2

Part (a)

Display contents of geomsum1 M-file

```
type 'geomsum1.m'
```

```
function [r,a,n] = geomsum1(r,a,n)
    sum = 0;
    for i = 0:n-1
        sum = sum + a*r^i;
    end
end
```

Assign values to input variables

```
r = -9/11;
a = 9;
n = 12;
```

Compute geometric sum for specified values of r,a, and n.

```
geomsum1(r,a,n);
```

Part (b)

```
geomsum2(r,a,n);
```

Exercise 3

Part (a)

Initiate product P.

```
P = 1;
```

Define starting iteration index.

```
m = 1;
```

Define stepsize of iteration.

```
k = 2;
```

Define ending iteration index.

```
n = 17;
```

Compute product.

```
for i = m:k:n  
    P = P*i; % multiply P by next element at each iteration (suppress output)  
end
```

Display product.

```
disp(P);
```

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Part (b)

```
P = 1:2:17;  
P = prod(P);
```

Exercise 4

Initiate variables.

```
power = 2;  
k = 10^3; % initiate counter
```

Initialize the vector v to the empty vector

```
v = [];
```

Compute powers and store in v.

```
while power < k % specify condition of while-loop: stop iterating once condition  
is no longer satisfied  
    v = [v, power]; % evaluate kth entry of the vector v  
    k = 10^3; % increment counter k  
    power = power*2; % compute next value of power at each iteration  
end
```

Display vector v.

```
disp(v);
```

2 4 8 16 32 64 128 256 512

Exercise 5

Display contents of function f M-file.

```
type 'f.m'
```

```
function y = f(x)
    if x==9
        disp('The function undefined at x = 9')
    elseif x <= 2
        y = (-3*x)-3;
    elseif (2 < x) && (x <= 4)
        y = exp(x-9);
    elseif (4 < x)
        y = x/(x-9);
    end
end
```

Evaluate f at the given vaue of x.

```
f(1);
```

Evaluate f at the given value of x.

```
f(2);
```

% Evaluate f at the given value of x.

```
f(2.5);
```

Evaluate f at the given value of x.

```
f(4);
```

Evaluate f at the given value of x.

```
f(9);
```

```
The function undefined at x = 9
```

Evaluate f at the given value of x.

```
f(10);
```