Lab 2 - Dean Styx - MAT 275 Lab

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Exercise 1

Part (a)

```
A = [3,0,-2;5,6,1;-4,3,7];
B = [4,3,2;1,5,6;10,8,9];
b =[4;19;16];
c = [3;2;1];
d = [5,6,7];
```

Part(b)

```
AB = A*B
BA = B*A
dB = d*B
Ac = A*c
```

```
AB =

    -8    -7   -12
    36    53    55
    57    59    73


BA =

    19    24     9
     4    48    45
    34    75    51


dB =

    96   101   109


Ac =

     7
```

```
    28
     1
```

Part (c)

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

```
C =

     4     3     2     3
     1     5     6     2
    10     8     9     1
```

```
D =

     3     0    -2
     5     6     1
    -4     3     7
     5     6     7
```

Part (d)

```
x = A\b
```

```
x =

    6.0000
   -3.0000
    7.0000
```

Part (e)

```
B(2,3) = 0
```

```
B =

     4     3     2
     1     5     0
    10     8     9
```

Part (f)

```
d(2) = 8
```

```
d =
```

```
     5     8     7
```

Part (g)

```
a = [A(2,:)]
```

```
a =

     5     6     1
```

Part (h)

```
B(:,1)=[]
```

```
B =

     3     2
     5     0
     8     9
```

Exercise 2

```
% Part (a)
```

```
% Display contents of geom_sum M-file.
% And call the function with given values on the paper.

type 'geom_sum.m'

% Assign values to input variables.
r = 1/4;
a = 8;
n = 6;

% Compute geometric sum for specified values of r,a, and n.
geom_sum(r,a,n)
```

```
function [ sum ] = geom_sum( r,a,n )

%this sum function will provide an addative sum to the previous sum.


%declare local varables/zero values to build upon
x = 0;
sum = 0;
```

```
for i = 0:n
    x = a*r^(i);

    sum = x+sum


end
sum
```

```
sum =

     8


sum =

    10


sum =

   10.5000


sum =

   10.6250


sum =

   10.6563


sum =

   10.6641


sum =

   10.6660


sum =

   10.6660


ans =

   10.6660
```

Part (b)

```
sum2( r, a, n)

%The values are slightly different due to more percise and non-
rounding
%factor of the sum function.


ans =

   10.6641
```

Exercise 3

```
type('exercise3')
run('exercise3')


%%Exersice 3 Lab 2

% Part (a)

% Initiate product P.
p = 1;

% Define starting iteration index.
m = 2;

% Define stepsize of iteration.
k = 2;

% Define ending iteration index.
n = 14;

% Compute product.
for i = m:k:n


     p=i*p;   % muliply P by next element at each iteration (suppress
 output)


end

% Display product.
p


%%
% Part (b)
```

```
b = prod(m:k:n)

p =

      645120


b =

      645120
```

Exercise 4

```
type('exercise3')
run('exercise3')


%%Exersice 3 Lab 2

% Part (a)

% Initiate product P.
p = 1;

% Define starting iteration index.
m = 2;

% Define stepsize of iteration.
k = 2;

% Define ending iteration index.
n = 14;

% Compute product.
for i = m:k:n


     p=i*p;   % muliply P by next element at each iteration (suppress
 output)


end

% Display product.
p


%%
% Part (b)
b = prod(m:k:n)

p =
```

```
      645120

b =

      645120
```

Exercise 5

```
% Display contents of function f M-file.
type 'f.m'

% Evaluate f at the given vaue of x.
f(-1)
% Evaluate f at the given value of x.
f(0)
% Evaluate f at the given value of x.
f(1)
% Evaluate f at the given value of x.
f(3)
% Evaluate f at the given value of x.
f(6)
% Evaluate f at the given value of x.
f(8)


function [ o ] = f( x )
%o stands for output, x is the input
if x <= 1
    o = x/(x+1);
elseif (1 < x) && (x<=6)
    o = exp(x-2);
else
    o = sin(x+x^2);

end


end


ans =

  -Inf


ans =

     0
```

```
ans =

    0.5000


ans =

    2.7183


ans =

   54.5982


ans =

    0.2538
```

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