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MTH20D

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MTH20D MatLab

*Homework 1*

**Exercise 1.1**

* The final MatLab Quiz will be on Wednesday, June 5th to Thursday, June 6th. It is availbe in the quizzes section of canvas

**Exercise 1.2**

x = 50;

b = 4;

logb = log( x ) / log(b)

= 2.8219

**Exercise 1.3**

The command m = -3:0.4:12 returns a vector, starting at -3, running to 12, with an interval of 0.4. This is a row vector, so without a semicolon MatLab displays 8 columns, of 1 value each at a time.

Typing in m(26) would return the face value at the linear index of 26. Matlab starts indexing at i=1, so m(26) returns 7.0000.

**Exercise 1.4**

*Original:* z = 25-(100-7exp(5+cos(pi/3))

*Error:* Invalid use of operator.

*Corrected:* z = 25 - (100 - (7 \* exp(5+cos(pi/3))))

**Exercise 1.5**

*Input:* p4 = asin(3)

*Output:* 1.570796326794897 - 1.762747174039086i

**Exercise 1.6.a**

>> for i=0:6

a \* r^i

end

ans =

1

ans =

0.333333333333333

ans =

0.111111111111111

ans =

0.037037037037037

ans =

0.012345679012346

ans =

0.004115226337449

ans =

0.001371742112483

**Exercise 1.6.b**

function geomSeq(n, r)

p6ba = 1;

p6br = 1/3;

for i=0: n-1

p6ba \* r^i

end

end

**Exercise 1.6.c**

ans =

1

ans =

0.250000000000000

ans =

0.062500000000000

ans =

0.015625000000000

ans =

0.003906250000000

ans =

9.765625000000000e-04

ans =

2.441406250000000e-04

**Exercise 1.7**

function mysum(n, r)

for i=0: n-1

1 / r^n

end

end

**Exercise 1.8**

g = @(x) sin(x)\*x;

fplot( g, [-10, 10] )

A screen shot of a computer screen

Description automatically generated

**Exercise 1.9**

syms s t

f8 = @(s, t) log( sin(s) + cos(t) );

diff( f8(s, t), t )

diff( f8(s, t), s )

ans =

-sin(t)/(cos(t) + sin(s))

ans =

cos(s)/(cos(t) + sin(s))

**Exercise 1.10**

y = -cos(t) + C

dsolve( 'Dy=sin(t)' );

4 - cos(t)

**Exercise 1.11**

dsolve( 'Dy=sin(t) \* log(y \* t) \* (asin(y / t))', 'y(0)=3' );

Warning: Unable to find symbolic solution.