

### Problem 5 :

a) 0

b)  $L(2:\text{end}-1, 2:\text{end})$  or  $L([2,3,4], [2,3])$

c)  $\begin{bmatrix} 0 & -1 \\ -4 & -2 \\ -3 & 8 \end{bmatrix}$

### Problem 6

a)  $x=2, y=1, z=5$

b)  $a=1$

$x=2$

$[z, y, b] = \text{examFun}(1, 2)$

Inside examFun(1,2)

$y = 2 + 2 \times 1 = 4$

$x = -4 \times 4 = -16$

$z = 3 \times (-16) - 4 = -52$

Returns  $[-16, -52, 4]$

$z = -16$

$y = -52$

$b = 4$

Problem 7 :  $a \begin{pmatrix} 4 \\ -1 \end{pmatrix} + b \begin{pmatrix} 2 \\ 1 \end{pmatrix} = \begin{pmatrix} -12 \\ 15 \end{pmatrix}$

(a)  $\begin{cases} 4a + 2b = -12 \\ -a + b = 15 \end{cases} \Rightarrow \begin{cases} b = 15 + a \\ 4a + 2(15 + a) = -12 \end{cases}$

$6a + 30 = -12 \Rightarrow 6a = -42$

$a = -7$

$b = 15 + a \Rightarrow b = 8$

(b)  $2 \begin{pmatrix} 5 \\ 7 \end{pmatrix} - 3\vec{v} = \begin{pmatrix} 31 \\ 26 \end{pmatrix} \Rightarrow \begin{pmatrix} 10 \\ 14 \end{pmatrix} - 3\vec{v} = \begin{pmatrix} 31 \\ 26 \end{pmatrix}$

$3\vec{v} = \begin{pmatrix} -21 \\ -12 \end{pmatrix} \Rightarrow \vec{v} = \begin{pmatrix} -7 \\ -4 \end{pmatrix}$

$$(C) \quad -Y + \begin{bmatrix} 4 & -1 \\ 3 & 2 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 2 & -1 \\ 4 & 4 \\ -1 & 0 \end{bmatrix}$$

$$-Y = \begin{bmatrix} -2 & 0 \\ 1 & 2 \\ -1 & -1 \end{bmatrix} \Rightarrow Y = \begin{bmatrix} 2 & 0 \\ -1 & -2 \\ 1 & 1 \end{bmatrix}$$

Problem 8 :

	loop #	error	X
	*	1.0	1.0
	1	0.25	1.5
	2	0.00694	1.416
STOPPED			

$X = 1.41666666...$   
 $error = 0.00694444...$

Problem 9 :

function result = factorial(n)

%USAGE: result = factorial(n)

%INPUTS: n -- integer

%OUTPUT: result -- n!

%DETAILED DESCRIPTION:

% Takes in an integer and calculates n!

result = 1;

for k = 2:n

    result = result \* k;

end

end

