2a.

A =

2	-3	-2	1
-1	2	1	1
1	1	-1	2
-1	-1	4	1

Asaug =

1	0	0	0	-1	-2	4/3	1/3
0	1	0	0	-1/2	-1/2	1/2	0
0	0	1	0	-1/2	-5/6	1/2	1/3
0	0	0	1	1/2	5/6	-1/6	0

Ainverse =

-1	-2	4/3	1/3
-1/2	-1/2	1/2	0
-1/2	-5/6	1/2	1/3
1/2	5/6	-1/6	0

>> i=A*Ainverse

i =

1	*	*	0
0	1	*	0
0	*	1	0
0	*	*	1

>> x=Ainverse*b

x =

8/3

1

2/3

-1

2b.

A =

2	1	-2	1
-1	2	1	1
1	1	-1	2
-1	-1	4	1

Asaug =

1	0	0	0	1	0	-2/3	1/3
0	1	0	0	1/2	1/2	-1/2	0
0	0	1	0	1/2	1/6	-1/2	1/3
0	0	0	1	-1/2	-1/6	5/6	0

Ainverse =

1	0	-2/3	1/3
1/2	1/2	-1/2	0
1/2	1/6	-1/2	1/3
-1/2	-1/6	5/6	0

```
>> i=A*Ainverse
```

i =

1	*	*	0
0	1	0	0
0	*	1	0
0	*	*	1

```
>> x=Ainverse*b
```

x =

1
-1/2
1/2
1/2

3.

x1 =

8/3

x2 =

1

x3 =

2/3

x4 =

-1

>> b=x1*A1+x2*A2+x3*A3+x4*A4

B =

-1/1501199875790165

-1

1

-2

4.

A =

1	1	1
2	3	2
3	2	5

EM1 =

1	0	0
-2	1	0
0	0	1

B =

1	1	1
0	1	0
3	2	5

EM2 =

1	0	0
0	1	0
-3	0	1

C =

1	1	1
0	1	0
0	-1	2

EM3 =

1	0	0
0	1	0
0	1	1

U =

1	1	1
0	1	0
0	0	2

(ii)

EM1inverse =

1	0	0
2	1	0
0	0	1

EM2inverse =

1	0	0
0	1	0
3	0	1

EM3inverse =

1	0	0
0	1	0

0 -1 1

(iii)

L =

1 0 0

2 1 0

1 -1 1

>> L*U

ans =

1 1 1

2 3 2

1 0 3

A =

1 1 1

2 3 2

3 2 5