**Acheev Bhagat**

**MATLAB 1**

Problem 1:

A =

-2 4 -5 -3 5 1

-1 -4 0 4 -4 -3

0 -4 -2 2 3 1

3 -2 -4 0 3 -2

AREF =

1.0000 0 0 0 -1.0500 -1.3500

0 1.0000 0 0 -2.4500 -2.1500

0 0 1.0000 0 -0.3125 0.5625

0 0 0 1.0000 -3.7125 -3.2375

The columns of A are not linearly dependent. They span R^4.

Problem 2:

U =

0.1341

0.2126

0.8949

0.0715

0.2425

0.0538

b =

-2.8407

-1.8299

-1.7162

-2.9827

x =

0.0906

0.1647

0.9338

0

0.2701

0

U is a solution because it contains values in R^4 and an additional

two free variables that can be used to define the others.

sol =

-2.0000 4.0000 -5.0000 -3.0000 5.0000 1.0000 -2.8407

-1.0000 -4.0000 0 4.0000 -4.0000 -3.0000 -1.8299

0 -4.0000 -2.0000 2.0000 3.0000 1.0000 -1.7162

3.0000 -2.0000 -4.0000 0 3.0000 -2.0000 -2.9827

Problem 3:

A =

0.4417 0.0934 0.9954 0.2982

0.0133 0.3074 0.3321 0.0464

0.8972 0.4561 0.2973 0.5054

0.1967 0.1017 0.0620 0.7614

B =

0.6311 0.9051 0.3381 0.0484

0.0899 0.5338 0.2940 0.6679

0.0809 0.1092 0.7463 0.6035

0.7772 0.8258 0.0103 0.5261

AB does not equal BA.

Problem 4:

b =

0

2.9000

14.8000

39.6000

74.3000

119.0000

x =

0

1.7125

-1.1948

0.6615

-0.0701

0.0026

With a polynomial of less than degree 5 Mtlab will throw an error because

the sizes don't align correctly and the calculations are therefore i

impossible.

Problem 5:

AREF =

1.0000 0 0 -0.4762 0

0 1.0000 0 -0.2976 0

0 0 1.0000 -0.4881 0

0 0 0 0 1.0000

The columns span R^4, and the fourth column can be deleted and the

remaining columns will still span R^4.

Problem 6:

AREF =

1.0000 0 0 -3.5000

0 1.0000 0 -4.5000

0 0 1.0000 0

0 0 0 0

x =

0

0

0

0

T is not one to one.