1.A+B,A-B,

2.A\*B+B\*A

3.Ax=b的解,并验证克莱姆法则

4.A,B的行列式，逆，秩

5.A\*B的行列式，逆，秩，

并验证det(A\*B)=det(A)\*det(B)



6.验证

7.求矩阵X使得AXB=C

>> A = rand(5)

A =

0.6448 0.2311 0.4334 0.9580 0.0089

0.8964 0.5274 0.2442 0.0954 0.8149

0.4822 0.7250 0.4290 0.0356 0.1405

0.0141 0.6074 0.0102 0.8862 0.8799

0.6229 0.5884 0.6088 0.2469 0.0954

>> B = rand(5)

B =

0.3526 0.4334 0.8574 0.8357 0.8065

0.5934 0.1398 0.0844 0.0499 0.6014

0.5852 0.7519 0.9721 0.5459 0.7896

0.6677 0.2418 0.0315 0.9432 0.7992

0.6480 0.6505 0.8354 0.3215 0.0496

>> A + B

ans =

0.9974 0.6645 1.2908 1.7937 0.8154

1.4898 0.6672 0.3285 0.1453 1.4163

1.0674 1.4769 1.4010 0.5815 0.9301

0.6818 0.8492 0.0416 1.8294 1.6791

1.2709 1.2388 1.4442 0.5684 0.1449

>> A - B

ans =

0.2922 -0.2023 -0.4239 0.1223 -0.7976

0.3030 0.3877 0.1598 0.0456 0.2135

-0.1030 -0.0269 -0.5431 -0.5103 -0.6491

-0.6536 0.3656 -0.0213 -0.0569 0.0807

-0.0251 -0.0621 -0.2266 -0.0745 0.0458

>> A \* B + B \* A

ans =

2.8069 2.7888 2.1572 3.0428 3.0563

2.2876 1.8551 2.4284 2.0382 1.5819

2.9857 2.7656 2.3506 2.0978 2.5092

2.7068 2.2330 1.6942 2.8634 2.2501

2.5909 2.2546 2.0945 2.1556 2.4798

>> b=rand(5,1)

b =

0.4488

0.6526

0.3035

0.6074

0.2789

>> x=A\b

x =

2.4731

3.2283

3.0210

-5.1354

1.402 x1=det([b,A(:,2:5)])/det(A);x2=det([A(:,1),b,A(:,3:5)])/det(A);x3=det([A(:,1:2),b,A(:,4:5)])/det(A);x4=det([A(:,1:3),b,A(:,5)])/det(A);x5=det([A(:,1:4),b])/det(A)

>> x1

x1 =

2.4731

>> x2

x2 =

3.2283

>> x3

x3 =

3.0210

>> x4

x4 =

-5.1354

>> x5

x5 =

1.4027

>> det(A)

ans =

0.0993

>> det(B)

ans =

-0.0931

>> inv(A)

ans =

1.3696 1.0117 1.6961 -0.9442 -2.5601

0.5526 -0.4251 3.7642 0.0989 -2.8768

-2.1131 -0.5902 -5.0338 0.6217 6.9199

0.9573 -0.3170 0.2541 0.3234 -0.7388

-1.3432 0.6034 -2.8235 0.7505 2.6911

>> inv(B)

ans =

0.5607 1.5990 -1.8991 0.0160 1.4723

-3.9166 -2.4586 4.6042 1.3239 -1.1396

2.4049 1.0395 -1.8977 -1.3889 0.8844

0.5489 -1.0421 -0.7307 0.9302 0.3572

-0.0260 0.5969 1.1308 -0.2057 -1.3416

>> rank(A)

ans =

5

>> rank(B)

ans =

5

>> det(A\*B)

ans =

-0.0093

>> det(A)\*det(B)

ans =

-0.0093

>> (A\*B)'

ans =

1.2635 1.3637 0.9661 1.5333 1.1517

0.8751 1.1989 0.7329 0.8852 0.9317

1.0313 1.7342 1.0101 0.8361 1.2630

1.6934 1.2607 0.7521 1.1663 1.1458

1.7673 1.3496 1.1990 1.1366 1.5390

>> B' \* A'

ans =

1.2635 1.3637 0.9661 1.5333 1.1517

0.8751 1.1989 0.7329 0.8852 0.9317

1.0313 1.7342 1.0101 0.8361 1.2630

1.6934 1.2607 0.7521 1.1663 1.1458

1.7673 1.3496 1.1990 1.1366 1.5390

>> inv(A\*B)

ans =

3.7024 1.8916 12.3769 -0.4420 -15.2269

-13.6541 -6.7417 -35.5204 5.8905 44.9154

5.3607 4.0849 14.6944 -3.1332 -18.8726

2.1307 1.3503 -0.0856 -0.5068 -3.1900

-0.4900 -1.6917 0.2466 -0.2868 2.7157

>> inv(B) \* inv(A)

ans =

3.7024 1.8916 12.3769 -0.4420 -15.2269

-13.6541 -6.7417 -35.5204 5.8905 44.9154

5.3607 4.0849 14.6944 -3.1332 -18.8726

2.1307 1.3503 -0.0856 -0.5068 -3.1900

-0.4900 -1.6917 0.2466 -0.2868 2.7157

>> A \* B

ans =

1.2635 0.8751 1.0313 1.6934 1.7673

1.3637 1.1989 1.7342 1.2607 1.3496

0.9661 0.7329 1.0101 0.7521 1.1990

1.5333 0.8852 0.8361 1.1663 1.1366

1.1517 0.9317 1.2630 1.1458 1.5390

>> B \* A

ans =

1.5434 1.9138 1.1259 1.3494 1.2890

0.9239 0.6561 0.6942 0.7775 0.2323

2.0197 2.0327 1.3405 1.3457 1.3102

1.1735 1.3477 0.8581 1.6970 1.1135

1.4392 1.3229 0.8315 1.0098 0.9408

>> C = rand(5)

C =

0.5678 0.8160 0.8999 0.8314 0.6382

0.2990 0.0983 0.5241 0.0348 0.3430

0.2561 0.8596 0.1202 0.7578 0.2165

0.8866 0.0276 0.1778 0.9571 0.7862

0.4468 0.8992 0.7061 0.3429 0.7231

>> X = inv(A) \* C \* inv(B)

X =

-1.2440 -2.9146 0.8687 1.3016 0.5007

-5.9299 -7.1132 4.5488 5.6303 -0.2411

3.7688 7.9477 -0.2540 -5.8690 -1.5437

0.2274 -0.6568 -0.3908 0.9628 0.5647

5.3428 6.6707 -4.6946 -4.2045 0.423验证：对于一般的方阵A,B,C,D，



>> A=rand(3,3);B=rand(3,3);C=rand(3,3);D=rand(3,3)

D =

0.9480 0.9867 0.6809

0.0596 0.7722 0.4169

0.2687 0.4754 0.3801

>> E(1:3,1:3)=A;E(1:3,4:6)=B;E(4:6,1:3)=C;E(4:6,4:6)=D

E =

0.2788 0.0921 0.2783 0.1709 0.2037 0.4333

0.5824 0.0240 0.3398 0.3993 0.6663 0.1752

0.4210 0.4911 0.2873 0.6976 0.4431 0.1932

0.6164 0.9448 0.9594 0.9480 0.9867 0.6809

0.2690 0.7145 0.7753 0.0596 0.7722 0.4169

0.5597 0.6792 0.6077 0.2687 0.4754 0.3801

>> det(E)

ans =

-0.0057

>> det(A) \* det(D) - det(B) \* det(C)

ans =

6.4888e-04

若A,C均为对角矩阵，且A可逆，则



A=diag(diag(rand(4,4)));B=rand(4,4);C=diag(diag(rand(4,4)));D=rand(4,4)

D =

0.0770 0.4138 0.8705 0.0581

0.4742 0.5027 0.6030 0.4578

0.8350 0.1254 0.2653 0.7222

0.4694 0.1323 0.8648 0.3390

>> E(1:4,1:4)=A;E(1:4,5:8)=B;E(5:8,1:4)=C;E(5:8,5:8)=D;

>> det(E)

ans =

0.0082

>> det(A\*D-C\*B)

ans =

0.0082

N= 200865083共9位

a= 后两位 83



b=第4-5位 86

c=第6-7位

d=第4,8位

e=第1,8位

f=第5,9位

g=第4,9位

h=第5,7位 60

求A列向量组的一个最大无关组，并把不属于

极大无关组的向量利用极大无关组表示

>> A = [4,46,50,40,3,4;1,2,3,4,4,3;12,15,22,17,5,7;20,64,44,60,8,0]

A =

4 46 50 40 3 4

1 2 3 4 4 3

12 15 22 17 5 7

20 64 44 60 8 0

>> b=rref(A)

b =

1.0000 0 0 0 -0.2945 -0.0863

0 1.0000 0 0 -1.4863 -1.3001

0 0 1.0000 0 -0.0062 0.3643

0 0 0 1.0000 1.8214 1.1484

>>