
ASEN 5014 HW 4

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Housekeeping

```
clc; clear; close all;
```

Problem 2

```
M = [  
      3  -1   4   0   7  
      3   7  11  -9   8  
      1  -3  -1   3   2  
     -10   6 -11  -3 -23  
    ]
```

```
r = rank(M);
```

```
[Q, R, P] = qr(M);
```

```
Q1 = Q(:,1:r)
```

```
Q2 = Q(:,r+1:end)
```

```
[Qhat, Rhat, Phat] = qr(M');
```

```
Qhat1 = Qhat(:,1:r)
```

```
Qhat2 = Qhat(:,r+1:end)
```

$M =$

3	-1	4	0	7
3	7	11	-9	8
1	-3	-1	3	2
-10	6	-11	-3	-23

$Q1 =$

-0.2754	-0.0033
-0.3148	-0.9083
-0.0787	0.3006
0.9049	-0.2908

$Q2 =$

0.9607	-0.0356
-0.0836	0.2624
0.0136	0.9504
0.2645	0.1631

$Qhat1 =$

-0.3547	0.0226
0.2128	-0.5876
-0.3901	-0.4775
-0.1064	0.6526
-0.8157	-0.0199

$Qhat2 =$

0.9148	-0.1086	-0.1584
-0.0565	-0.6343	-0.4515
-0.1400	0.6374	-0.4404
-0.1947	-0.1135	-0.7156
-0.3201	-0.4083	0.2550

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