

Solutions for Assignment h2

1. Matlab Code and Solutions

`% h2p1.m`

```
A=[4.00001, 1.00000, 2.00000;10.00000, -0.10000, 3.00000; ...  
    5.00000, 3.00000, 1.00000];  
b=[4.00001; 12.800000; 12.00000];  
[L,U,P]=lu(A)  
x=A\b
```

`%-----`

```
L=  1.0000      0      0  
    0.5000    1.0000      0  
    0.4000    0.3410    1.0000
```

```
U= 10.0000  -0.1000  3.0000  
      0    3.0500  -0.5000  
      0      0    0.9705
```

```
P=  0  1  0  
    0  0  1  
    1  0  0
```

```
x=[2.2297; 1.3243; -3.1216];
```

2. `%h2p2.m` -

```
for k=8:2:12  
    format long;  
    n=k;  
    H=hilb(n);  
    x=ones(n,1);  
    b=H*x;  
    y=H\b; %err=y-x;  
    y'  
    % n, [det(H), norm(err,1), norm(err,2), norm(err,inf)]  
    format short;  
    [n, det(H), cond(H,1), cond(H,2), cond(H,inf)]  
end
```