Pranav Kalyani
Pk7683
Lab7
Monday 630-8

Problem 1

Command

```
>> A = [0 -cos((30+35)*(pi/180)) -cos(45*(pi/180)) cos(65*(pi/180)); 0 -sin((30+35)*(pi/180)) -
sin(45*(pi/180)) sin(65*(pi/180)); -cos(30*(pi/180)) 0 0 -cos(65*(pi/180)); -sin(30*(pi/180)) 0 0 -
sin(65*(pi/180))];

B = [0; 0; 0; 2200*9.81];

>> gmatrix(A,B)

ans =

  1.0e+04 *

   1.5902

  -3.2586

        0

  -3.2586
```

Script

```
function p = gmatrix (G,H)

[r ,c] = size (G); % length

p = zeros (1,r);

for ii = 1:r - 1

   if (G(ii,ii)==0) % pivots

      t =  min(find(G(ii+1:r,ii)~=0)+ii);

      temp1 = G(ii,:);

      tempa = H(ii);

      G(ii,:) = G(t,:);

      H(ii) = H(t);

      G(t,:) = temp1;

      H(t) = tempa;

   end

   for z = ii+1 : r % zeros for the diagonal
```

Pranav Kalyani
Pk7683
Lab7
Monday 630-8

```
        m = -G(z,ii) / G(ii,ii);

        G(z,ii) = 0;

        G(z, ii+1:r) = G(z, ii+1:r) + m * G(ii, ii+1:r);

        H(z) = H(z) + m*H(ii);

    end

end

p(r)=H(r)/G(r, r);

for ii = r - 1 : -1 : 1 % substitution

    p(ii)=(H(ii)- sum(p(ii+1:r).*G(ii, ii+1:r)))/G(ii,ii); %calculates matrix value

end

p = p'; %transposes and displays it
```

Problem 2

Command

```
 B = [0; 0; 0; 2200*9.81];

C = A\B

C =

   1.0e+04 *

    1.5902

   -3.2586

         0

   -3.2586
```

Problem 3

Command

```
>> A = [1.001 1; 1 1];

B = [2; 1];

 C = A\B

C =

   1.0e+03 *
```

Pranav Kalyani
Pk7683
Lab7
Monday 630-8

1.0000

-0.9990