(a)

The direction of vector k will either be i \* j or j \* I, but since I \* j gives positive value after dot product with k, the final result is (-0.1225, -0.1493, 0.9812)

(b)

According to the lecture slides, the matrix R is given by

{

0.9 0.4 0.1\*

-0.41833 0.90427 0.08539

-0.12247 -0.14931 0.98118

}

(c)

T = {

I3\*3 -c

0 0 0 1

}

T =

{

1 0 0 1

0 1 0 2

0 0 1 3

0 0 0 1

}

C= [

-1

-2

-3

]

(d)

=

Α = Fy = 1050/1.0606 = 990

Skew = cot(90 – 0.573) = 0.01

K =

{

-1050 0.01 -10

0 990 5

0 0 1

}

(e)

Result : π = K \* projection \* rotation \* translation

>> K = [-1050 0.01 -10; 0 990 5; 0 0 1];

>> projection = [ 1 0 0 0; 0 1 0 0; 0 0 1 0];

>> K

K =

1.0e+03 \*

-1.0500 0.0000 -0.0100

0 0.9900 0.0050

0 0 0.0010

>> rotation = [0.9 0.4 0.1732 0; -0.41833 0.90427 0.0839 0; -0.12247 -0.14931 0.98118 0; 0 0 0 1];

>> translation = [ 1 0 0 1; 0 1 0 2; 0 0 1 3; 0 0 0 1];

>> pie = K\*projection\*rotation\*translation

**π =**

**1.0e+03 \***

**-0.9438 -0.4185 -0.1917 -2.3558**

**-0.4148 0.8945 0.0880 1.6381**

**-0.0001 -0.0001 0.0010 0.0025**

>>

(f)