

Question 1:

(a.i)

T =

1	0	0	-3
0	1	0	-1
0	0	1	-2
0	0	0	1

Rx =

1.0000	0	0	0
0	-1.0000	0.0000	0
0	-0.0000	-1.0000	0
0	0	0	1.0000

Ry =

-0.0000	0	1.0000	0
0	1.0000	0	0
-1.0000	0	-0.0000	0
0	0	0	1.0000

P' = (RT)P =

>> Rx \* Ry \* T \* P

ans =

0
0
0
1

(a.ii)

T =

1	0	0	-3
0	1	0	-1
0	0	1	-2
0	0	0	1

Rx =

1.0000	0	0	0
0	-1.0000	0.0000	0
0	-0.0000	-1.0000	0
0	0	0	1.0000

Ry =

-0.0000	0	1.0000	0
0	1.0000	0	0
-1.0000	0	-0.0000	0
0	0	0	1.0000

R =

-0.0000	0	1.0000	0
-0.0000	-1.0000	-0.0000	0
1.0000	-0.0000	0.0000	0
0	0	0	1.0000

$Q = (T^{-1} R^{-1}) Q' =$

>> T^-1 \* R^-1 \* QPrime

ans =

11.0000
-4.0000
8.0000
1.0000