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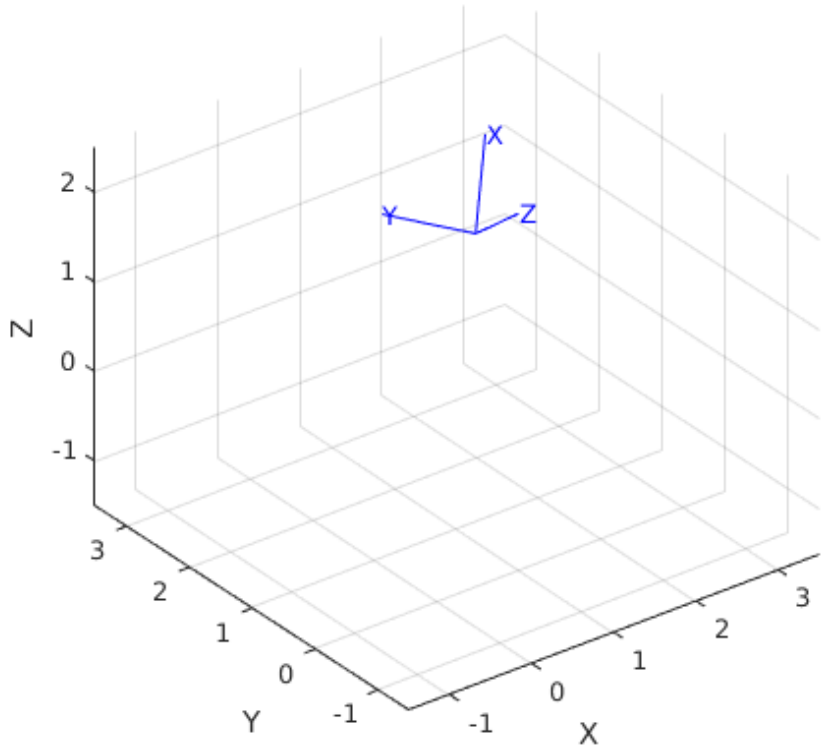
```
% Chapter 2 Exercise 10
clc;
clear all
close all
```

Create a 2D or 3D homogeneous transformation matrix

```
T = transl(2,2,1)*trotz(pi/4)*troty(-pi/4)*trotx(pi/6);
```

Visualize the rigid-body displacement using tranimate

```
tranimate(T)
```



Use the transformation matrix to transform a vector

```
vec = [1 2 3 1]'
transformed_vec = T*vec
```

```
vec =

     1
     2
     3
     1


transformed_vec =

    0.5369
    0.8650
    4.2513
    1.0000
```

Invert the transformation and multiply by the original matrix

```
T_inv = inv(T);
result = T_inv*T
```

```
result =

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

Switch the order of multiplication and now what is the result?

```
result = T*T_inv
```

```
result =

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

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