HW4.5. Find the body twist that will bring an object to a desired pose

A robot manipulator is holding an empty bottle, whose pose is represented by frame 1. The robot aims to throw the bottle such that it reaches a target position p_2^0 with a target orientation R_2^0 (expressed with respect to a reference frame 0). After the robot releases it, the bottle will be subjected to a constant twist $\mathcal{V}$ until it hits the target. Assuming that the bottle is released with a pose T_1^0, what body twist should the bottle have to reach the desired target after t seconds?

Python

```
import numpy as np

t = 2.61966858
T_1in0 = np.array([[0.23381619, 0.96604994,
-0.10989772, -0.30254462], [0.07360744,
-0.13029430, -0.98873927, 0.01119553],
[-0.96949055, 0.22309396, -0.10157338,
0.09639341], [0.00000000, 0.00000000,
0.00000000, 1.00000000]])
p_2in0 = np.array([0.20266967, -1.77820886,
-1.02013429])
R_2in0 = np.array([[-0.24323594,
-0.74479074, -0.62138799], [-0.94648638,
0.32235299, -0.01587738], [0.21213160,
0.58427331, -0.78334212]])
```

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$\mathcal{V} =$ matrix (rtol=0.01, atol=1e-08)

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Single attempt

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Homework 4

Assessment overview

Total points: 22/22

Score: 110%

Question

Value: 2

History: 1 2

Awarded points: 2/2

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