← Back Lecture Comprehension, Exponential Coordinates of Rotation (Chapter 3.2.3, Part 2 of 2)
Practice Quiz + 20 min + 2 total points

Go to next item

Ocngratulations! You passed!

1. The solution to the differential equation $p(t) = \hat{\omega} \times p(t) = |\hat{\omega}| p(t)$ is $p(t) = e^{i\omega t} p(0)$, where p(0) is the problem of the solution and p(t) is the vector after it has been rotated at the engine reactly $\hat{\omega}$ for time $t = \theta$ where $\hat{\omega}$ is an entire exponential coordinates). You can think of $R = e^{i\omega t}$ is the rotation operation that moves p(0) to $p(t) = p(\theta)$. Which of the following statements is correct! Select all that apply. $\mathbb{Z}_{R,\theta} = R_{R,\theta}^{(0)}$ represents the orientation of a new frame [0] relative to [0] effect the frame [0] has been rotated by θ about an axis in represented in the [0] frame as Ω . Onrect
Multiplication of the rotation operation on the right corresponds to W being interpreted in the frame of the second subscript, (b). $\left| \begin{array}{c} R_{ijl} = R_{ijl} e^{ijlt} \text{ expressed the orientation of a new family } |\mathbf{j}| \text{ entities } |\mathbf{j}| \text{ after the family } |\mathbf{j}| \text{ has been related by if about an early expressed of the <math>|\mathbf{j}|$ (a new early). $\left| \begin{array}{c} R_{ijl} = e^{ijlt} R_{ijl} \text{ expressed to the orientation of a new family } |\mathbf{j}| \text{ entitle } |\mathbf{j}| \text{ extract by } |\mathbf{j}| \text{ extracted by } |\mathbf{j}| \text{ extract$ rotated by θ' about an axis w represents on one (b) instead axis. $\mathbb{Z}[R_{ab'} = e^{[|a'|]}R_{ab'}]$ represents the orientation of a new frame [b'] relative to (s) after the frame [b] has been rotated by θ' about an axis w represented in the (s) frame as $\hat{\omega}$. The simple closed-form solution to the infinite series for the matrix exponential when the matrix is an element of so(3) is stern-symmetric 3d matrix) is called what? so(3) (a skew-symmetric 1

Ramirez's formula.

Rodrigues' formula.

Robertson's formula.

The metric representation of the metric lag resides a critical metric (air element of SO(3)) and the alternymmetric representation of the exponential coordinates (air-metric of or(3)), which can also be thought of as the not) preparation of the expolar-valuely followed for writines. Which of the following statements is correct. Execut of the stage).
 are provided to the stage of t

O Correct
The matrix exponential "Integrates" the altern-symmetric Act(3) representation of an angular validity for unit time by yield the rotation matrix describing the orientation exhibited after rotation from an initial orientation described by the identity matrix.

 $\begin{tabular}{ll} \square $\exp : SO(3) \to so(3)$ \\ \square $\log : so(3) \to SO(3)$ \\ \square $\log : SO(3) \to so(3)$ \\ \end{tabular}$

Our rect.
The matrix logarithm of a rotation matrix R gives the angular velocity that must be followed for unit time, starting from a frame represented as the identity matrix, to rotate to R.R. if differentiates? the net rotation of displacement to find the engular velocity that must be followed for unit time.