

Quiz 4

- Due Feb 25 at 11:59pm
- Points 9
- Questions 9
- Available until Feb 25 at 11:59pm
- Time Limit None

Instructions

You have one attempt.

Questions might have more than one correct answer.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	587 minutes	6 out of 9

ⓘ Correct answers will be available on Feb 26 at 12am.

Score for this quiz: 6 out of 9

Submitted Feb 23 at 6:49pm

This attempt took 587 minutes.



Question 1

1 / 1 pts

Given a 3-by-3 rotation matrix, one can always find a set of quaternions that parametrizes it.

☒ True

☐ False



Question 2

1 / 1 pts

Given a set of quaternions, one can always compute the corresponding 3-by-3 rotation matrix.

☒ True

☐ False



Question 3

1 / 1 pts

Any given attitude can be represented by a quaternion vector:

- ☒ That points to the surface of a 4-D hypersphere.
- ☒ Of length 1
- ☐ Of variable length
- ☐ That points to the surface of a 3-D sphere.



Question 4

1 / 1 pts

The algorithm used to compute quaternions, starting from the entries of a 3-by-3 rotation matrix, is known as:

- ☐ Hamilton's Method
- ☐ Euler's Method
- ☒ Shepperd's Method
- ☐ Rodrigues's Method



Incorrect Question 5

0 / 1 pts

The following is a quaternion vector:

$q = [0.2, 0.3, 0.4, 0.1]^T$;

- ☒ True
- ☐ False



Question 6

1 / 1 pts

Given two reference frames \mathcal{B} , \mathcal{I} , the angular velocity of \mathcal{B} with respect to \mathcal{I} , expressed in the \mathcal{I} -RF coordinates, is:

$$\vec{\omega}_{\mathcal{I}}^{\mathcal{B}/\mathcal{I}} = [1, -2, 3]^T.$$

What is $\vec{\omega}_{\mathcal{B}}^{\mathcal{B}/\mathcal{I}}$?

- ☐ $[1, -2, 3]^T$
- ☒ Not enough information to determine it.
- ☐ $[-1, 2, -3]^T$
- ☐ $[3, -2, 1]^T$



IncorrectQuestion 7

0 / 1 pts

Given two reference frames \mathcal{B} , \mathcal{I} , the angular velocity of \mathcal{B} with respect to \mathcal{I} , expressed in the \mathcal{I} -RF coordinates, is:

$$\vec{\omega}_{\mathcal{I}}^{\mathcal{B}/\mathcal{I}} = [1, -2, 3]^T.$$

What is $\vec{\omega}_{\mathcal{I}}^{\mathcal{I}/\mathcal{B}}$?

- ☐ [1,-2,3]'
- ☒ Not enough information to determine it.
- ☐ [-1,2,-3]'
- ☐ [3,-2,1]'



IncorrectQuestion 8

0 / 1 pts

Given two reference frames \mathcal{B} , \mathcal{I} , the angular velocity of \mathcal{B} with respect to \mathcal{I} , expressed in the \mathcal{I} -RF coordinates, is:

$$\vec{\omega}_{\mathcal{I}}^{\mathcal{B}/\mathcal{I}} = [1, -2, 3]^T.$$

What is $\vec{\omega}_{\mathcal{B}}^{\mathcal{I}/\mathcal{B}}$?

- ☐ [1,-2,3]'
- ☐ Not enough information to determine it.
- ☒ [-1,2,-3]'
- ☐ [3,-2,1]'



Question 9

1 / 1 pts

The derivative of a vector:

- ☒ Can be zero
- ☐ Is always a vector with same length
- ☒ Is a vector
- ☐ Is always a vector with same direction

Quiz Score: 6 out of 9