5/5 points (100.00%)

Quiz, 5 questions

✓ Congratulations! You passed!

Next Item

1 of 6 7/8/18, 9:08 PM

5/5 points (100.00%)

Quiz, 5 questions

1.

In this assessment, you will be tested on all of the different topics you have in covered this module. Good luck!

A ship travels with velocity given by $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$, with current flowing in the direction given by $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$ with respect to some co-ordinate axes.

What is the velocity of the ship in the direction of the current?

 \bigcirc

 $\begin{bmatrix} 3/2 \\ 3/2 \end{bmatrix}$

Correct

This is the vector projection of the velocity of the ship onto the velocity of the wind.

5/5 points (100.00%)

Quiz, 5 questions

2.

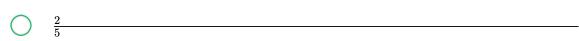
A ball travels with velocity given by $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$, with wind blowing in the direction given by $\begin{bmatrix} 3 \\ -4 \end{bmatrix}$ with respect to some co-ordinate axes.

What is the size of the velocity of the ball in the direction of the wind?

_ 2			
$-{5}$			

5				
$\frac{\overline{2}}{2}$		<u> </u>		

	5	
0 -	$-\frac{3}{2}$	



Correct

This is the scalar projection of the velocity of the ship onto the velocity of the wind.

5/5 points (100.00%)

Quiz, 5 questions

3.

Given vectors
$$\mathbf{v}=\begin{bmatrix}-4\\-3\\8\end{bmatrix}$$
 , $\mathbf{b_1}=\begin{bmatrix}1\\2\\3\end{bmatrix}$, $\mathbf{b_2}=\begin{bmatrix}-2\\1\\0\end{bmatrix}$ and

$$\mathbf{b_3} = \begin{bmatrix} -3 \\ -6 \\ 5 \end{bmatrix}$$
 all written in the standard basis, what is \mathbf{v} in the basis defined by $\mathbf{b_1}$, $\mathbf{b_2}$ and $\mathbf{b_3}$? You are given that $\mathbf{b_1}$, $\mathbf{b_2}$ and $\mathbf{b_3}$ are all

defined by b_1 , b_2 and b_3 ? You are given that b_1 , b_2 and b_3 are all pairwise orthogonal to each other.



Correct

This is a change of basis in 3 dimensions.

5/5 points (100.00%)

Quiz, 5 questions

4.

Are the following vectors linearly independent?

$$\mathbf{a}=egin{bmatrix}1\\2\\-1\end{bmatrix}$$
 , $\mathbf{b}=egin{bmatrix}3\\-4\\5\end{bmatrix}$ and $\mathbf{c}=egin{bmatrix}1\\-8\\7\end{bmatrix}$.

 \bigcirc

O No

Yes

Correct

One can be written as a linear combination of the other two.

5 of 6

5/5 points (100.00%)

Quiz, 5 questions

5. At 12:00 pm, a spaceship is at position $egin{bmatrix} 3 \\ 2 \\ 4 \end{bmatrix} km$ away from the origin with respect to some 3 dimensional co ordinate system. The ship is travelling with velocity $egin{bmatrix} -1 \\ 2 \\ -3 \end{bmatrix} km/h$ What is the location of the

spaceship after 2 hours have passed?

Correct

This takes the idea of vectors in the context of a moving body.





