Homework 19 , Section 4.1: 4, 19, 24

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Homework

4.

ABC is not closed under vector addition is because when $\begin{bmatrix}1\\0\end{bmatrix}$ is added to the $\begin{bmatrix}1\\1\end{bmatrix}$ it gives the vector $\begin{bmatrix}2\\1\end{bmatrix}$ which is not in the space.

19.

$\frac{c_1(cos(wt))}{c_2(sin(wt))} = c_1(\frac{cos(wt)}{sin(wt)}) + c_2(\frac{cos(wt)}{sin(wt)})$

24. A)

True by the definition of vector space

24. B)

True because of multiplication by a scalar

24. C)

True because if a vector space is a subspace if they have the same zero vector

24. D)

False because R^2 doesn't have a zero vector

24. E)

False because there is nothing to say that U and V represent all the elements of H