Linear Algebra

1. Compute determinants of the following matrices.

a) $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ b) $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ c) $\begin{pmatrix} 1 & 2 \\ -2 & -4 \end{pmatrix}$.

2. Find all solutions to $A\mathbf{x} = \mathbf{0}$ for

a) $\begin{pmatrix} 1 & 2 \\ -2 & -4 \end{pmatrix}$ b) $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$.

3. Which of the following pairs of vectors are linearly independent?
a) $(1,0)$ and $(1,1)$
b) $(2,5)$ and $(1,3)$
c) $(1,3)$ and $(-2,-6)$?

18.03SC Differential Equations
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