Is this matrix diagonalizable?

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Hello

Let A = [1 3 1 2]
[0 −1 1 3]
[0 0 2 5]
[0 0 0 −2]

So I found that we have two repeated eigenvalues, namely lambda = 2.
Therefore among the 4 eigenvectors there are two eigenvectors which
have the same value, hence they can't
be linearly independent because a vector is a multiple of itself.
Therefore A is not diagonalizable. Is this correct?
Is there another way to see it?

Thanks in advance

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