14 Proof by Contradiction

$\exists\ \lambda_1$ & λ_2 of a 2x2 matrix are distinct, and assume the corresponding real eigenvectors are not distinct

$\Rightarrow A e_1 = \lambda_1 e_1$ & $A e_2 = \lambda_2 e_2$
with $e_1 = a e_2$

$\Rightarrow \lambda_1 e_1 = A e_1 = A a e_2 = \lambda_2 a e_2 = \lambda_2 e_1$

$\therefore \lambda_1 = \lambda_2$ which is impossible because λ_1 and λ_2 are distinct

$\Rightarrow$ λ_1 & λ_2 are distinct implies the corresponding real eigenvectors are distinct too

3 points
proof works

2 points
convoluted or
small hole

1 point
really convoluted
or really big hole

0 points
no work or
unfinished