1. True or False?

Every line through the origin in  $\mathbf{R}^2$  is the null space of some linear functional  $\phi \in (\mathbf{R}^2)'$ .

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2. True or False?

Suppose U is a subspace of a finite dimensional vector space V. Then  $U = \{0\}$  if and only if  $U^0 = V'$ .

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