QUIZ 8

Instructions: Please write your name at the top of the page. Circle T if the statement is always true under the stated hypotheses, and F otherwise. No justification is required. Each question is worth 1 point (5 points total).

Unless otherwise indicated, $\mathbb{K}$ is a field and all vector spaces are finite-dimensional over $\mathbb{K}$.

(a) **T** **F** The dimensions of the pairwise nonisomorphic irreducible complex representations of a finite group G sum to $|G|$.

(b) **T** **F** The group algebra $\mathbb{C}[G]$ is commutative if and only if every irreducible complex representation of G is one-dimensional.

(c) **T** **F** Two square integer matrices with the same nonzero determinant must have the same Smith normal form.

(d) **T** **F** Every irreducible complex representation of a finite group is one-dimensional.

(e) **T** **F** Two symmetric bilinear forms on $\mathbb{R}^n$ with the same rank are isometric.

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