

MA 565 Homework 12
Due Friday, November 20

Axler 9.A # 9, 10, 12, 16

Axler 10.A # 6, 7, 17

1. Let $T : M_{n \times n}(k) \rightarrow k$ be a function with the following properties:
 - (a) T is linear;
 - (b) $T(AB) = T(BA)$ for all $A, B \in M_{n \times n}(k)$.

Prove that T is a scalar multiple of the trace.