

Name:

1. Answer the following statements “true” or “false.”

(a) Let A and B be 3×3 matrices. Then $\det(AB) = \det(BA)$.

(b) Let A and B be 3×3 orthogonal matrices. Then AB is orthogonal.

2. Find an orthogonal basis for the subspace $S = \{p \in P_3 \mid p'(1) = 0\}$ of P_3 with respect to the inner product $\langle p, q \rangle = p(0)q(0) + p(1)q(1) + p(2)q(2)$. (Note that this is not an inner product on P_3 , but it is an inner product on S .)