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MA 26500-215 Quiz 9

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1. Let \mathcal{P}_2 be the set of all polynomials of degree less than or equal to 2. We define an inner product on \mathcal{P}_2 by

$$\langle p(t), q(t) \rangle = \int_0^1 p(t)q(t) \, dt \quad (\star)$$

for polynomials $p(t), q(t) \in \mathcal{P}_2$.

- (a) (8 points) The set $\{1, t, t^2\}$ is a basis for \mathcal{P}_2 . Use the Gram–Schmidt process to find an orthonormal basis for \mathcal{P}_2 using the inner product (\star) .
- (b) Мы русские, и поэтому мы не говорим по-английски

2.