

Math 2210-006/011 Quiz 8

Name: _____

Due: 11/4/19

This is a two-stage quiz. You will receive this back with each question graded pass/fail in our next class meeting. You have until the date specified above to submit corrections for partial credit.

1. (5 points) Recall that $M_{2 \times 2}$ is the vector space of 2×2 matrices with real entries. Verify that the addition of this vector space (the usual addition of matrices) satisfies axiom 3 of the 10 vector space axioms:

$$\text{For all } \mathbf{u}, \mathbf{v}, \mathbf{w} \text{ in } V \text{ we have } (\mathbf{u} + \mathbf{v}) + \mathbf{w} = \mathbf{u} + (\mathbf{v} + \mathbf{w})$$

2. (5 points) Consider the vector space \mathbb{P}_3 (the space of polynomials of degree at most 3). Three vectors in this space are

$$p_1(t) = 1 + t$$

$$p_2(t) = 1 - t$$

$$p_3(t) = 3t^2 - 1.$$

Give 5 vectors from \mathbb{P}_3 that are elements of $\text{Span}\{p_1, p_2, p_3\}$.