

Name: _____

Math 2250, Fall 2011, Quiz 10

November 11, 2011

R. Bruner

Let $H = \{p \in P_3 \mid p(1) = 0\}$, the subspace of P_3 containing those degree 3 polynomials whose value at 1 is zero.

1. Is the following a basis of H ?

$$\{x - 1, x(x - 1), x^2(x - 1)\}$$

Hint: the fact that $p(1) = 0$ tells you something useful about the factorization of p .

2. The following set spans H . Remove vector(s) to make it into a basis.

$$\{x^2(x - 1), x^3 - 1, x^2 - 1, x^3 + x^2 - 2, x(x^2 - 1)\}$$