Math 321

Linear Algebra

January 27, 2006 Quiz 1 Spring 2006

Name: Key (blue)

1. Let $P = (3, -1, 2)$ and $Q = (2, 1, 1)$ be two points in $\mathbb{R}^3$.

a) Give the located vector $\vec{PQ}$.

$(-1, 2, -1)$

b) Compute the dot product $P \cdot Q$.

$P \cdot Q = 6 - 1 + 2 = 7$

c) Determine the projection of P along Q.

$$\frac{P \cdot Q}{Q \cdot Q} Q = \frac{7}{4+1+1} (2, 1, 1) = \frac{7}{6} (2, 1, 1)$$

Math 321

Linear Algebra

January 27, 2006 Quiz 1 Spring 2006

Name: Hyg (white

1. Let $P = (2, -1, -1)$ and $Q = (1, 3, 1)$ be two points in $\mathbb{R}^3$.

a) Give the located vector $\vec{PQ}$.

$(-1, 4, 2)$

b) Compute the dot product $P \cdot Q$.

$P, Q = 2 - 3 - 1 = -2$

c) Determine the projection of P along Q.

$$\frac{P \cdot Q}{Q \cdot Q} Q = \frac{(-2)}{1+9+1}(1, 3, 1) = -\frac{2}{11}(1, 3, 1)$$