

Name:

PID:

Discussion Section - No:

Time:

TA's name:

Quiz 3, Math 10C - Lecture A (Winter 2007)

Duration: 20 minutes

Please close your books, turn your calculators off and put them away. You can use one page of notes. To get full credit you should support your answers.

1. Let $\vec{t} = \vec{i} + \vec{j}$ and $\vec{s} = -\vec{i} + \vec{j} + \vec{k}$.

a) **(3 points)** Find the unit vectors \vec{t}_u and \vec{s}_u in the direction of \vec{t} and \vec{s} , respectively. What is the angle between \vec{t}_u and \vec{s}_u ? (Hint: The angle between \vec{t}_u and \vec{s}_u is same as the angle between \vec{t} and \vec{s} .)

b) **(2 points)** Find a unit vector \vec{w}_u that is perpendicular to both \vec{t} and \vec{s} .

c) (3 points) Find the projections of the vector $\vec{v} = \vec{j} + 2\vec{k}$ onto \vec{t}_u , \vec{s}_u and \vec{w}_u . (Hint: The sum of these three projections must be equal to \vec{v} .)