

TRANSPORT PHENOMENA 052:217

Quick Quiz I

January 18, 2005

Closed Book Exam

1. What are the assumptions for the Navier-Stokes equation?
2. What are the properties of an ideal fluid? When can real fluid problems be considered to be behaving ideally?

3. Let

$$\vec{v} = 2x\vec{j}$$

and

$$\vec{D} = 7y\vec{i}\vec{k} + 3\vec{j}\vec{k}$$

Compute the following quantities (RCCS) at and indicate the rank of the resulting tensor.

$(x,y,z) = (2,1,3)$:

a. $\vec{v} \cdot \vec{D}$

b. $\nabla \vec{v}$

