

MA1971

Name: _____

Quiz 4

D Term, 2013

Show all work needed to reach your answers.

1. (10 points) Let $A := \{\ell : \ell \text{ is a line in the Cartesian plane}\}$ and let $x \perp y$ iff x and y are *perpendicular* lines. Please explain why \perp is or is not **reflexive**, **symmetric** and **transitive**.
2. (4 points) What is the key distinction between a **function** and a **relation**?
3. (6 points) Suppose A and B are sets and $f : A \rightarrow B$ is a function. What must be true if f is **1-1**? What must be true if f is **onto**?