Quiz 12 Name: _____

1. Let R be the relation on the set of ordered pairs of positive integers such that

$$((a, b), (c, d)) \in R \iff ad = bc$$

Prove that R is an equivalence relation.

(a) Reflexive:

(b) Symmetric:

(c) Transitive:

2. Show that in $\mathbb{Z}_5$ if $[a] = [a']$ and $[b] = [b']$ then $[a] + [b] = [a'] + [b']$
That is, show that $[a + b] = [a' + b']$
Start with the fact that $[a] = [a']$ means $a \equiv a' (\bmod 5)$ i.e. $a = a' + 5k$ for some k