CS 173, Fall 18 Examlet 4, Part A

Name:_____

NetID:_____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4

Let $A = \mathbb{Z}^+ \times \mathbb{Z}^+$, i.e. pairs of positive integers. Consider the relation T on A defined by

$(x, y)T(p, q)$ if and only if $(xy)(p + q) = (pq)(x + y)$

Prove that T is transitive.

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Suppose that T is a relation on the integers which is antisymmetric. Let's define a relation R on pairs of integers such that $(p, q)R(a, b)$ if and only if $(a + b)T(p + q)$ and bTq. Prove that R is antisymmetric.