

Math 1165 Homework for March 27, 2007 Relation/Matrix problem

Your name _____

Consider the relation R defined on the set $S = \{1, 2, 3, 4\}$ as follows:

$$R = \{(1, 2), (1, 3), (2, 2), (2, 3), (3, 4), (4, 1)\}.$$

1. Draw the digraph of R .
2. Construct the matrix M_R of R .
3. Compute the composition relation $R \circ R$ as a set of ordered pairs and construct its digraph.
4. Use your graphing calculator to find the matrices M_R^2 , M_R^4 , M_R^8 . Interpret the entry $a_{1,3}$ of the matrix M_R^8 as it relates to the digraph.