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 $M_R^2$ as it relates to the digraph.