1. Use the Binomial Theorem to write the expansion of (x + y) 6?
2. Write the coefficient of the term x2y4z5 expansion of (x + y + z) 11.

Let A = {a, b, c, d}, and let R be the relation defined on A by the following matrix:

MR = 

(a) Describe R by listing the **ordered pairs** in R and draw the **digraph** of this relation.

(b) Which of the properties: reflexive, antisymmetric and transitive are true for the given relation? Begin your discussion by defining each term **in general** first and then how the definition relates to this specific example.

(c) Is this relation a partial order? **Explain**. If this relation is a partial order, draw its Hasse diagram.