Math 55 Section 101 Quiz 9

Problem 1 (9.1 # 7d,e) Determine whether the relation on R on the set of all integers is reflexive, symmetric, anti-symmetric and/or transitive, when $(x, y) \in R$ if and only if:

1.A (2 pt) $x \equiv y \mod 7$

1.B (2 pt) x is an integer multiple of y.

Problem 2 (2 pt) (Like 9.3 # 21) Draw the directed graph corresponding to the following matrix (where the rows and columns correspond to the integers in increasing order). The set is $\{1, 2, 3, 4\}$ with column indices increasing left to right and row indices increasing top to bottom.

$$\begin{bmatrix} 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Problem 3 (4 pt) Determine whether or not this graph determines an equivalence relation.