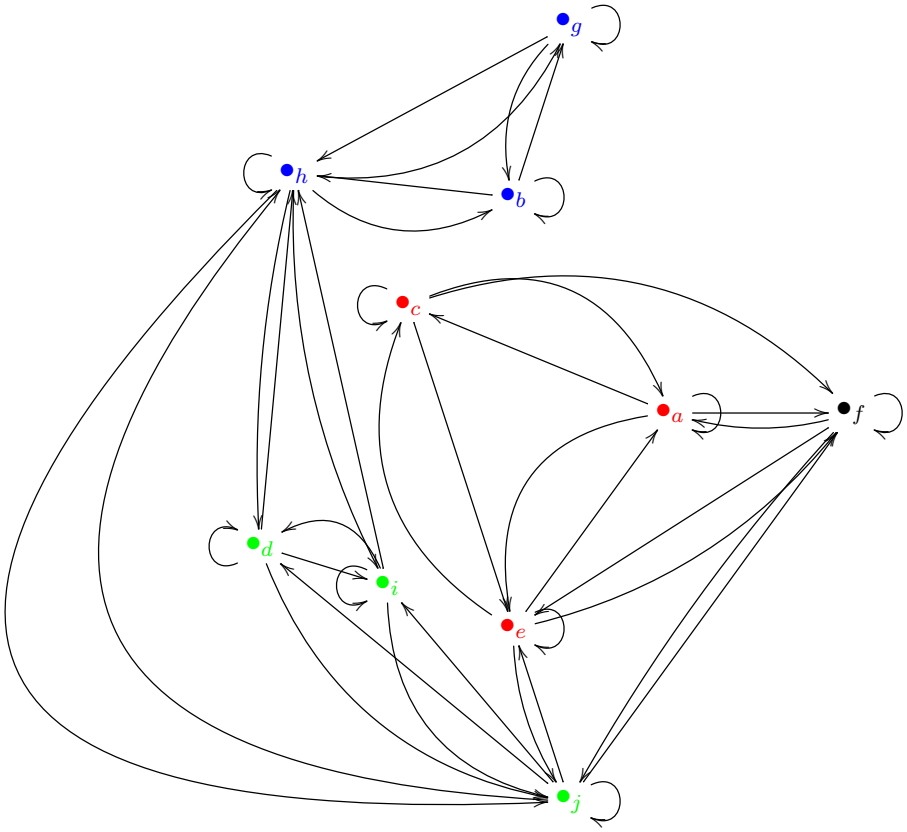
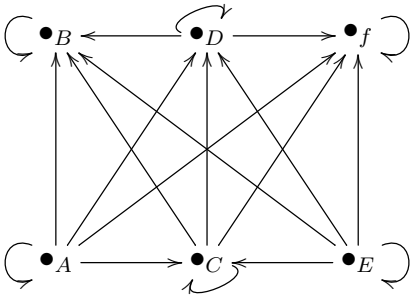
Show all your work. No essays, be concise

Name: _____ **Due Date**: 02/05

Q 1) *Determine whether the relation given by the digraph below is an equivalence relation. Justify your answer.*



Q 2*) Determine whether the relation given by the digraph below is a partial order. If it is, draw its Hasse diagram.*



Q 3*) What is the transitive closure of the relation* $R = \{(1,2),(1,4),(2,3),(3,1),(4,2)\}$

Q 4*) Show that the relation* $R = \{(x, y)|x - y \in \mathbb{Z}\}$ *is an equivalence relation on the set of rational numbers. What are the equivalence classes of 0 and* $\frac{1}{2}$ *?*