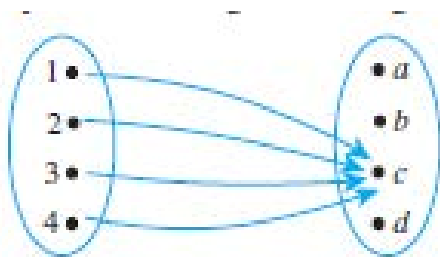


Assignment 4

Question1 :

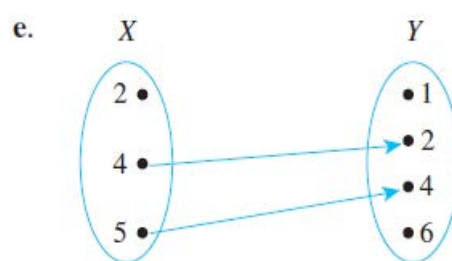
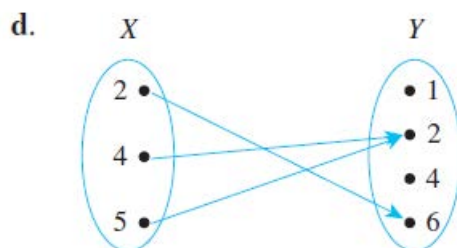
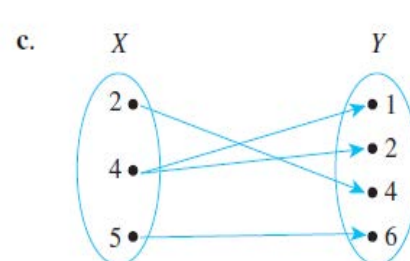
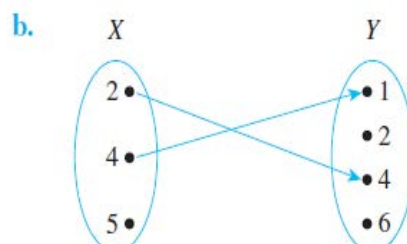
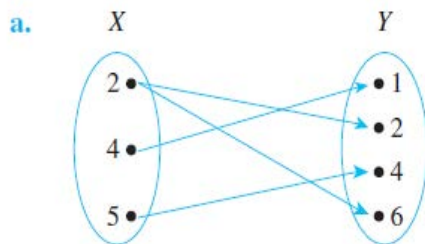
Let $C = \{1, 2, 3, 4\}$ and $D = \{a, b, c, d\}$. Define a function $G: C \rightarrow D$ by the following arrow diagram:



- Write the domain and co-domain of G .
- Find $G(1)$, $G(2)$, $G(3)$, and $G(4)$.

Question2 :

Let $X = \{2, 4, 5\}$ and $Y = \{1, 2, 4, 6\}$. Which of the following arrow diagrams determine functions from X to Y ?



Question 3:

Consider the function $f: \mathbb{Z} \rightarrow \mathbb{Z}$ given by $f(n) = \begin{cases} n + 1 & \text{if } n \text{ is even} \\ n - 3 & \text{if } n \text{ is odd.} \end{cases}$

- (a) Is f injective? Prove your answer.
- (b) Is f surjective? Prove your answer.