Instructions
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.
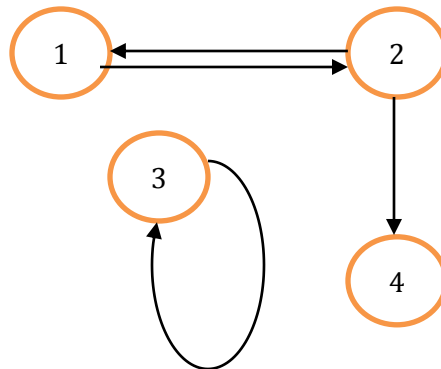
1. Given $A = \{a, b, c, d, e\}$ and $B = \{2, 4, 5\}$. Find the $|A \times B|$.

2. Define disjoint set between two sets. Give an example to support your definition.

3. Given $A = \{1, 2, 3\}$ and $B = \{x, y, z\}$. Let $R = \{(1, y), (1, z), (3, y)\}$.
   Answer the following questions:
   (a) Find the domain and range of R.
   (b) Draw the arrow diagram of R.
   (c) Find the $|B \times A|$.
   (d) State True or False for the following.
       (i) $1Rz$
       (ii) $(3, z) \in R$
       (iii) $2\ R\ y$

4. Let $A = \{1, 2, 3, 4\}$ and R is the relation on A that is represented by the digraph below.

Translate the digraph into R.