

Challenging Problems (to be answered in comment box.....)

1. Find the domain and range of the relation R given by

$$R = \{(x, y) : y = x + \frac{6}{x}, \text{ where } x, y \in N \text{ and } x < 6\}.$$

2. If $(A \times B) \cap (B \times A) = \{(0,1), (0,2), (1,1), (1,2), \dots \dots 9 \text{ pairs}\}$ then write $A \cap B$.
3. How many different relations can be defined in set $A = \{0,1,2\}$? where each relation has 8 elements.
4. If a relation S on R (set of real numbers) is defined as $S = \{(x, y) : x \text{ is divisible by } y\}$, is every element of set R related to itself?
Answer as YES or NO.