It is clear from the previous discussion that for all the cases xRy ⇒ xzRyz. Thus, R is a right invariant.

5. Check whether a set of numbers divisible by n is closed under subtraction and division (except division by 0) operation.

Solution: A set of numbers divisible by n can be represented as $S = \{0, n, 2n, 3n, 4n, \ldots\ldots\}$.
Subtraction:

$$n - 0 = n$$
$$n - 2n = -n$$
$$3n - n = 2n$$
$$\ldots\ldots\ldots\ldots$$

In general, $(m - p)n - (m - q).n = n(q - p)$. This may or may not be divisible by n. So, a set of numbers divisible by n is not closed under division.

Division:

2n/n = 2
3n/2n = 3/2
. . . .

In general, $(m - p)n/(m - q).n = (m - p)/(m - q)$. This may or may not be divisible by n. So,a set of numbers divisible by n is not closed under division.

Fill in the Blanks

1. For a string, any prefi x of the string other than the string itself is called as the ————————— of the string.
2. For a string , any suffi x of the string other than the string itself is called as the ————————— of the string.
3. If there are two sets A and B, then their intersection is denoted by ————————— .
4. For a set of elements n, the number of elements of the power set of A is ————————— .
5. A relation R is said to be ————————— , if for two elements 'a' and 'b' in X, if a is related to b then b is related to a.
6. A relation R is said to be —————————— , if for a, b, c ∈ A and if aRb, bRc hold good then aRc also holds good .
7. A relation R is called as an ———————— on 'A', if R is refl exive, symmetric, and transitive.

Answers:

1. proper prefi x
2. proper suffi x
3. A ∩ B
4. 2^n
5. symmetric
6. transitive
7. equivalence relation