Yash Raliwal

DATE

PAGE

1) if $A = \{x : x \text{ is a prime number between } 4 \text{ and } 16\}$

$A = \{5, 7, 11, 13\}$

So all possible subset of A are

$(\{\phi\}, \{5\}, \{7\}, \{11\}, \{13\}, \{5,7\}, \{5,11\}, \{5,13\}, \{7,11\}, \{7,13\}, \{11,13\}, \{5,7,11\}, \{5,7,13\}, \{5,11,13\}, \{7,11,13\}, \{5,7,11,13\})$

2) $F(x) : Z \to Z \quad F(x) = x + 5$.

One one test of $F(x)$

$F(x) = F(y)$

$x + 8 = y + 8$

$x = y$

So F is one-one

onto test such that $F(x) = y$

$x + 5 = y$

$x = y - 5 \quad \in z$

So F is onto function

Since they are both one-one & onto so the it is bijective.

hence it is invertible

Yash Paliwal

DATE
PAGE

3) $n = 100$
$m = 26$

so by applying pigeon hole $\left\lfloor \frac{n-1}{m} \right\rfloor + 1$

$$\left\lfloor \frac{100-1}{26} \right\rfloor + 1$$

$$\left\lfloor \frac{99}{26} \right\rfloor + 1$$

$$3 + 1$$
$$= 4$$

4) So there are 2 methods to represent a graph

1) 0-1 matrix : we represent the order by 0 or 1
2) Adjeneency matrix :- we represent by writting the edge ~~of the~~ which is making connection

5) $1^0 = 1$
$1^1 = 1$
$1^2 = 1 + 1 = 2$
$1^3 = 1 + 1 + 1 = 3$

inverse
$1^{-1} = -1$
$1^{-2} = -1 - 1 = -2$
$1^{-3} = -1 - 1 - 1 = -3$

Yash Paliwal

DATE

PAGE

6)

Semi group	Monoid.
i) closure law :- if $(a,b) \in Z$, $a+b \in Z$	closure law
ii) Associative law	Associative law
$(a,b,c) \in Z$	Identity law.
$a+(b+c) = a+(b+c)$	$1 \in Z$

7) ~~a.~~ ~~P~~ n = 0

$f(1) = 2 * f(0) + 3 = 2 * 3 + 3 = 6 + 3 = 9$

$f(2) = 2 * f(1) + 3 = 2 * 9 + 3 = 18 + 3 = 21$

$f(3) = 2 * f(2) + 3 = 2 * 21 + 3 = 42 + 3 = 45$