Recuperación parcial 1

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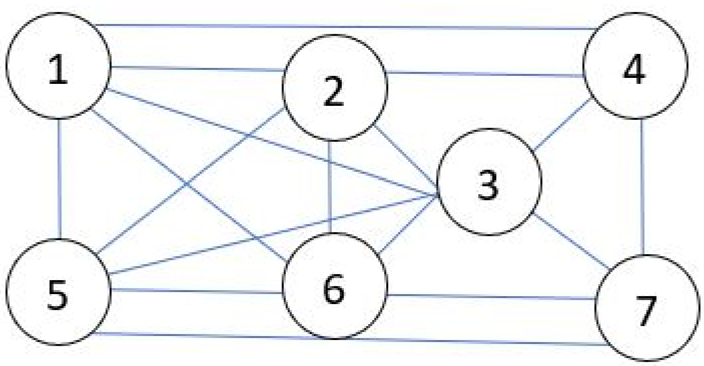
1 Pregunta 1

1. Conjunto de nodos: $\{1, 2, 3, 4, 5, 6, 7\}$
2. Conjunto de vértices:
   $\{< 1, 2 >, < 1, 3 >, < 1, 4 >, < 1, 5 >\}$
   $\{< 1, 6 >, < 4, 2 >, < 5, 2 >, < 5, 3 >\}$
   $\{< 5, 6 >, < 5, 7 >, < 6, 2 >, < 6, 3 >\}$
   $\{< 7, 6 >, < 7, 4 >, < 7, 3 >, < 4, 3 >\}$



2 Pregunta 2

$$\sum_{i=1}^{n} n = \frac{n(n+1)}{2}$$

Caso base n=1
1= 1(1+1)/2
1=2/2
1=1

Caso inductivo n= n+1

$$(1 + 2 + 3....n) + (n + 1) = \frac{(n + 1)(n + 1) + 1}{2} \tag{1}$$

$$= \frac{(n + 1)(n + 1) + 1}{2} \tag{2}$$

$$= \frac{(n+1)(n+2)}{2} \tag{3}$$

$$\underline{n = \frac{(n+1)(n+1)+1)}{2}} \tag{4}$$

3 Pregunta 3

$\sum(n) = 1+2+3+4+\ \dots\ +n$

$\sum(n) = 1+2+3+4+\ \dots\ n = \begin{cases} 0 & \text{si } n = 0 \\ 1 & \text{si } n = 1 \\ \frac{n(n+1)}{2} & \text{si } n = s(i) \end{cases}$

4 Pregunta 4

Demostrar por medio de inducción la comutatividad de la suma de numeros naturales unarios: $a \oplus b = b \oplus a$
Caso base a=0
0 $\oplus b = b \oplus 0$
$\underline{b = b}$
(a $\oplus b = b$ si $a = 0$)
Caso inductivo a= s(i)
$s(i) \oplus b = b \oplus s(i)$
$\underline{s(i \oplus b) = s(i \oplus b)}$

5 Pregunta 5

Demostrar utilizando inducción que $((n \oplus n) \geq n) = s(o)$.
Caso base n=0
$(0+0) \geq 0 = (s(0)$
Caso inductivo $n = s(i)$
s(i)$\oplus s(i) \geq s(i)$
$s(s(i) \geq s(i)$
$s(s(i) \ominus s(i) \geq 0$
$s(i) \geq 0$
$\underline{s(i) \geq 0 = s(0)}$