Parcial #1

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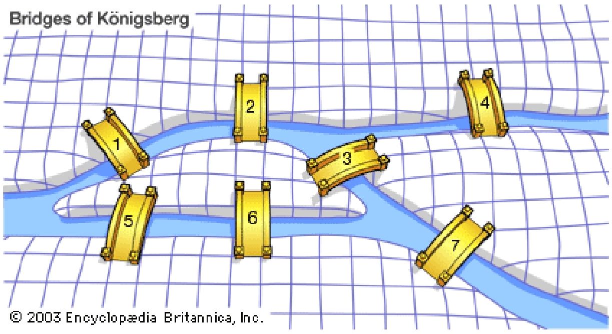
1. Ejercicio #1



- **Nodos:** $\{1, 2, 3, 4, 5, 6\}$
- **Vértices:** $$\left\{ \begin{bmatrix} \langle 1,2\rangle & \langle 1,3\rangle & \langle 1,4\rangle \\ \langle 1,5\rangle & \langle 1,6\rangle & \langle 2,3\rangle \\ \langle 2,4\rangle & \langle 2,5\rangle & \langle 2,6\rangle \\ \langle 3,4\rangle & \langle 3,5\rangle & \langle 3,6\rangle \\ \langle 3,7\rangle & \langle 4,7\rangle & \langle 5,6\rangle \\ \langle 5,7\rangle & \langle 6,7\rangle & \end{bmatrix} \right\}$$

2. Ejercicio #2

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

1. **Caso Base:**
   - $$\sum_{i=1}^{1} i = \frac{1(1+1)}{2}$$
   - $$\sum_{i=1}^{1} i = \frac{1(2)}{2}$$
   - $$\sum_{i=1}^{1} i = \frac{2}{2}$$
   - $$\sum_{i=1}^{1} i = 1$$

2. **Hipótesis Inductiva:**

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

3. Ejercicio #3

- $\frac{s(0)\otimes(s(0)\oplus s(0))}{s(s(0))}$
- $\frac{s(0)\otimes s(s(0))}{s(s(0))}$
- $\frac{s(s(0))}{s(s(0))}$
- $s(0)$

4. Ejercicio #4

$$a \oplus b = b \oplus a$$

1. **Caso Base:**

   - $0 \oplus 0 = 0 \oplus 0$
   - $0 = 0$

2. **Hipótesis Inductiva:**

   - $a = s(i)yb = s(j)$
   - $s(i) \oplus b = b \oplus s(i)$
   - $s(i \oplus b) = s(b \oplus i)$
   - $s(i \oplus b) = s(i \oplus b)$ equivale a $s(i \oplus s(j)) = s(i \oplus s(j))$

5. Ejercicio #5

$$((n \oplus n) \geq n) = s(o)$$

1. **Caso Base:**

   - $((1 + 1) \geq 1) = 1$
   - $(2 \geq 1) = 1$
   - $((2 - 1) \geq 0) = 1$
   - $1 \geq 0 = 1$

2. **Hipótesis Inductiva:**

   - $((s(i) \oplus (s(i)) \geq (s(i)) = s(o)$
   - $(s(s(i)) \geq (s(i)) = s(i)$
   - $(s(s(i)) \ominus (s(i)) \geq o) = s(0)$
   - $(s(i) \geq o) = s(o)$