California State University Sacramento - Math 101

Quiz # 1

Name: Matthew Mendoza

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1) Let $A = \{2n : n \text{ is an integer}\}$ and $B = \{1, 2, 3, 4, 5\}$. Find $A \cap B$.

2

$A \to \{2, 4, 6, \ldots\}$

Intersection

$\therefore A \cap B = \{2, 4\}$

1

2) For $1 \leq i \leq 10$, let $A_i = \{1, 2, \ldots, i\}$. Determine $\left|\bigcup_{i=1}^{10} A_i\right|$.

No mention of disjoint set so...

$$\left|\bigcup_{i=1}^{10} A_i\right| = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

(-1)

$= 10$

3

3) Suppose $A = \{0, 3, 6, 9, 12, 15, 18\}$ and $B = \{0, 2, 4, 6, 8\}$. Find $A \cup B$ and $A \cap B$.

2

Union

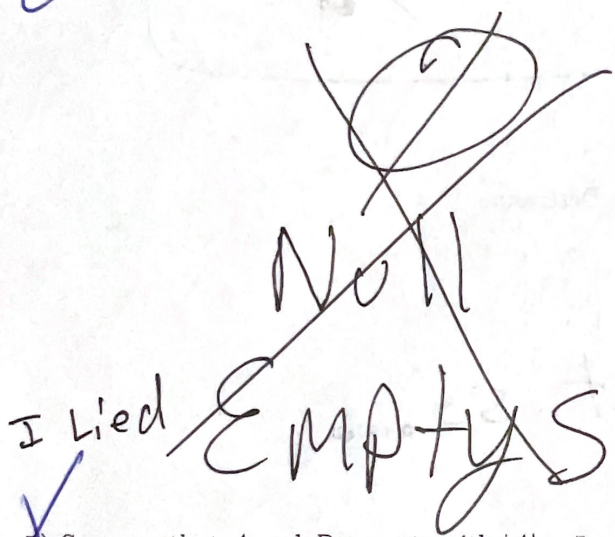
$A \cup B = \{0, 2, 3, 4, 6, 8, 9, 12, 15, 18\}$

Interseldon

$A \cap B = \{0, 6\}$

4) Suppose A and B are disjoint sets with $|A| = 5$ and $|B| = 3$. Determine $|A \cup B|$.

2



$A = \{1, 2, 3, 4, 5\}$

$B = \{6, 7, 8\}$

$|A \cup B| = \{1, 2, \ldots, 7, 8\}$

$\therefore |A \cup B| = 8$

Null

I Lied

Empty set

5) Suppose that A and B are sets with $|A| = 5$ and $|B| = 3$. Can you say anything about $|A \cup B|$?

That $|A \cup B|$ is the sum of ~~#~~ $|A|$ and $|B|$.

Both

only when disjoint

$|A \cup B|$ could be 5, 6, 7, or 8