RESULTS

○	**At most the size of the set sizes**	**78%**
○	**Could be smaller, same, or larger than the sum of the set sizes.**	**13%**
●	**At least the sum of the set sizes**	**8%**

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Results gathered from 481 respondents.

FEEDBACK

at most the sum of the sizes as some elements may be in both sets, and adding the sizes counts these elements twice.

1

0 points possible (ungraded)

Which of the following are finite for every finite set A and an infinite set B?

☑ $A \cap B$ ✓

☐ $A \cup B$

☑ $A - B$ ✓

☐ $B - A$

☐ $A \Delta B$

✓

Submit You have used 1 of 4 attempts

ℹ Answers are displayed within the problem

2

1/1 point (graded)

Which of the following pairs A and B satisfy $|A \cup B| = |A| + |B|$?

☑ $\{1, 2\}$ and $\{0, 5\}$ ✓

☐ $\{1, 2\}$ and $\{2, 3\}$

☐ $\{i \in \mathbb{Z} : |i| \leq 3\}$ and $\{i \in \mathbb{Z} : 2 \leq |i| \leq 5\}$

☐ $\{\text{English words starting with the letter 'a'}\}$ and $\{\text{English words ending with the letter 'a'}\}$

✓

Explanation

$|A \cup B| = |A| + |B|$ holds when A and B are disjoint.

Submit You have used 1 of 3 attempts

Answers are displayed within the problem

3

2.0/2.0 points (graded)

$|A \cup B \cup C| = |A| + |B| + |C|$ whenever:

A and B are disjoint and B and C are disjoint,

○ True

● False ✓

Explanation

False. Let $A = C = \{1\}$ and $B = \{2\}$. Then A and B are disjoint, B and C are disjoint. But $|A \cup B \cup C| = 2$ while $|A| + |B| + |C| = 3$

A and B are disjoint, B and C are disjoint, and A and C are disjoint.

● True ✓

○ False

Explanation

True. Since A and C are disjoint, and B and C are disjoint, we must have that $A \cup B$ and C are disjoint. Hence $|A \cup B \cup C| = |A \cup B| + |C|$
Since A and B are disjoint, we have $|A \cup B| = |A| + |B|$
Hence $|A \cup B \cup C| = |A| + |B| + |C|$

Submit You have used 2 of 4 attempts

Answers are displayed within the problem

4. Non perfect-squares

0 points possible (ungraded)

Recall that a square of an integer, for example, 1, 4 and 9, is called a *perfect square*. How many integers between 1, and 100, inclusive, are *not* perfect squares?

90 ✓ **Answer:** 90

90

Explanation

The perfect squares between 1 and 100 are 1^2, 2^2, ..., 10^2. Hence there are 10. By the complement rule, 100-10=90 integers between 1 and 100 are not perfect squares.

Submit You have used 1 of 4 attempts

Answers are displayed within the problem

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