Math 1303 - Math in the Liberal Arts

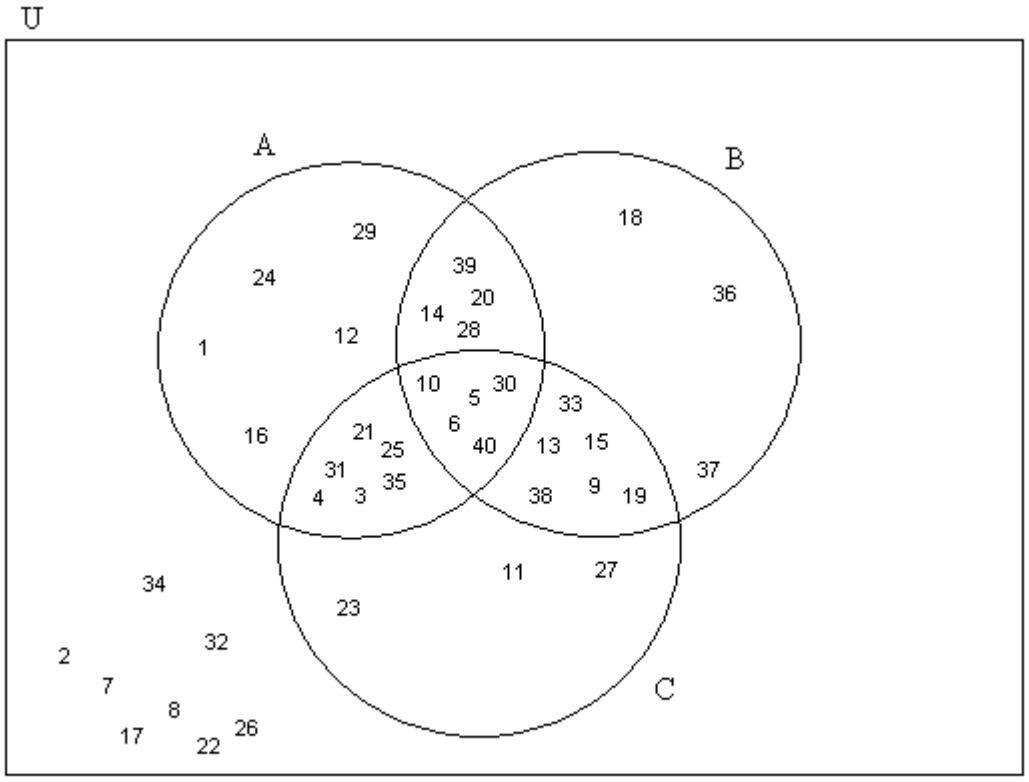
Quiz #8 - 2005.09.30

Solutions

Let $U = \{x | (x \in \mathbb{N}) \wedge (x \leq 40)\}$ be the universal set. Consider the following proper subsets of U:

$$A = \{1, 3, 4, 5, 6, 10, 12, 14, 16, 20, 21, 24, 25, 28, 29, 30, 31, 35, 39, 40\}$$
$$B = \{5, 6, 9, 10, 13, 14, 15, 18, 19, 20, 28, 30, 33, 36, 37, 38, 39, 40\}$$
$$C = \{3, 4, 5, 6, 9, 10, 11, 13, 15, 19, 21, 23, 25, 27, 30, 31, 33, 35, 38, 40\}$$

1. Fill out the following diagram completely.



2. Compute the following sets:

a) $(A \cap B)' \cap C$

$$(A \cap B)' \cap C = \{3, 4, 9, 11, 13, 15, 19, 21, 23, 25, 27, 31, 33, 35, 38\}$$

b) $A \cap (B \cup C)$

$$A \cap (B \cup C) = \{3, 4, 5, 6, 10, 14, 20, 21, 25, 28, 30, 31, 35, 39, 40\}$$