ES. 11-03-2019

$\Omega = \{1, 2, 3, \ldots, 15\}$
$A = \{15, 2, 7, 3\}$
$B = \{4, 12, 2\}$

1. $P(A|B) = \frac{P(B \cap A)}{P(B)} = \frac{1}{15} \cdot \frac{15}{3} = \frac{1}{3}$ ✓

2. $P(A \cap B | A \cup B) = \frac{1}{15} \cdot \frac{15}{6} = \frac{1}{6}$ ✓

$A \cap B = \{2\}$
$A \cup B = \{2, 3, 7, 15, 12, 4\}$

3. $C = \{8, 1, 5, 6, 11, 9\}$

$P(C | A \cup B) = P(C) = \frac{6}{15}$ ✓

4. $A = \{2, 3, 7, 15\}$
$B = \{2, 4, 12\}$
$C = \{1, 5, 6, 8, 9, 11\}$

$\frac{12}{15} = P(A \cup B \cup C)$

$P(A \cup B \cup C)^C = \frac{3}{15} = \frac{1}{5}$ ✓