1. A student taking a multiple choice test either knows the answer or guesses. Let p be the probability that the student knows the answer and $1-p$ be the probability that the student guesses. When the student guesses, the answer will be correct with probability $1/m$, where m is the number of multiple-choice alternatives. What is the conditional probability that the student knew the answer to a question, given that they answered it correctly?

2. Suppose that A and B are events such that $\Pr(A) = 1/3$, $\Pr(B) = 1/5$, and $\Pr(A|B) + \Pr(B|A) = 2/3$. Evaluate $\Pr(A^c \cup B^c)$.