Question #13628

a problem is given to three students a b and c whose chances of solving the problem is $1/3$, $1/4$ and $1/5$ repesctively. find the probability that the problem will be solved by at least one of them.

Solution. Denote by A_1, A_2, A_3 respectively events that students a,b,c, will solve Then A_1, A_2, A_3 are independent and $P(A_1 = 1/3)$, $P(A_2) = 1/4$, $P(A_3 = 1/5)$. The even (the problem will be solved by at least one of them) is opposite to the (none of them will solve the problem), thus the probability in question equals $1 - (1 - 1/3)(1 - 1/4)(1 - 1/5) = 1 - 2/3 \cdot 3/4 \cdot 4/5 = 3/5$.

Answer. $3/5$.