

Question #15239 Suppose 2 houses in 1000 catches fire in a year; there are 2000 houses in the village. what is the probability of
1 at least 1 house catches fire?
2 none of the house catch fire? .

Solution. The probability of a fire 0.002. The number of houses caught by fire per year $X = Bin(2000, 0.002)$.

a) $P(X \geq 1) = 1 - P(X = 0) = 1 - 0.998^{1000} \approx 0.86$.

b) $P(X = 0) = 0.998^{1000} \approx 0.14$.