Let $H$ be the percentage of clients with homeowners insurance and $R$ be the percentage of clients with renters insurance.

Because 36\% of clients do not have auto insurance and none have both homeowners and renters insurance, we calculate that 8\% (36\% – 17\% – 11\%) must have renters insurance, but not auto insurance.

$(H – 11)\%$ have both homeowners and auto insurance, $(R – 8)\%$ have both renters and auto insurance, and none have both homeowners and renters insurance, so $(H + R – 19)\%$ must equal 35\%. Because $H = 2R$, $R$ must be 18\%, which implies that 10\% have both renters and auto insurance.

The reimbursement is positive if health care costs are greater than 20, and because of the memoryless property of the exponential distribution, the conditional distribution of health care costs greater than 20 is the same as the unconditional distribution of health care costs.

We observe that a reimbursement of 115 corresponds to health care costs of 150 \(100\% \times (120 – 20) + 50\% \times (150 – 120)\), which is 130 greater than the deductible of 20.

Therefore, \(G(115) = F(130) = 1 – e^{\frac{130}{100}} = 0.727\).

\[E\left[100(0.5)^X\right] = 100E\left[(0.5)^X\right] = 100E\left[\left(\ln 0.5\right)^X\right] = 100M_X(\ln 0.5) = 100 \frac{1}{1 – 2\ln 0.5} = 41.9\]