9. Solution: B
Let
\[ M = \text{event that customer insures more than one car} \]
\[ S = \text{event that customer insures a sports car} \]
Then applying DeMorgan’s Law, we may compute the desired probability as follows:
\[
\Pr(M^c \cap S^c) = \Pr\left( (M \cup S)^c \right) = 1 - \Pr(M \cup S) = 1 - \left[ \Pr(M) + \Pr(S) - \Pr(M \cap S) \right]
\]
\[ = 1 - \Pr(M) - \Pr(S) + \Pr(S|M)\Pr(M) = 1 - 0.70 - 0.20 + (0.15)(0.70) = 0.205 \]

10. Solution: C
Consider the following events about a randomly selected auto insurance customer:
\[ A = \text{customer insures more than one car} \]
\[ B = \text{customer insures a sports car} \]
We want to find the probability of the complement of A intersecting the complement of B (exactly one car, non-sports). But \( P( A^c \cap B^c) = 1 - P( A \cup B) \)
And, by the Additive Law, \( P( A \cup B) = P( A) + P( B) - P( A \cap B) \).
By the Multiplicative Law, \( P( A \cap B) = P( B | A) P( A) = 0.15 \cdot 0.64 = 0.096 \)
It follows that \( P( A \cup B) = 0.64 + 0.20 - 0.96 = 0.744 \) and \( P( A^c \cap B^c) = 0.744 = 0.256 \)

11. Solution: B
Let
\[ C = \text{Event that a policyholder buys collision coverage} \]
\[ D = \text{Event that a policyholder buys disability coverage} \]
Then we are given that \( P[C] = 2P[D] \) and \( P[C \cap D] = 0.15 \).
By the independence of C and D, it therefore follows that
\[ 0.15 = P[C \cap D] = P[C] P[D] = 2P[D] P[D] = 2(P[D])^2 \]
\[ (P[D])^2 = 0.15/2 = 0.075 \]
\[ P[D] = \sqrt{0.075} \text{ and } P[C] = 2P[D] = 2 \sqrt{0.075} \]
Now the independence of C and D also implies the independence of \( C^C \) and \( D^C \). As a result, we see that
\[ P[C^C \cap D^C] = P[C^C] P[D^C] = (1 - P[C])(1 - P[D]) \]
\[ = (1 - 2 \sqrt{0.075})(1 - \sqrt{0.075}) = 0.33 \].