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:
\[
\Pr(M^c \cap S^c) = \Pr[(M \cup S)^c] = 1 - \Pr(M \cup S) = 1 - \left[ \Pr(M) + \Pr(S) - \Pr(M \cap S) \right]
\]
\[
= 1 - \Pr(M) - \Pr(S) + \Pr(S|M)\Pr(M) = 1 - 0.70 - 0.20 + (0.15)(0.70) = 0.205
\]

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, \( P(A \cap B) = P(B | A)P(A) = 0.15 * 0.64 = 0.096 \)
It follows that \( P(A \cup B) = 0.64 + 0.20 - 0.096 = 0.744 \) 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
\[
P[C^c \cap D^c] = P[C^c]P[D^c] = (1 - P[C])(1 - P[D])
\]
\[
= (1 - 2\sqrt{0.075})(1 - \sqrt{0.075}) = 0.33
\]