

19. Solution: B

Apply Bayes' Formula. Let

A = Event of an accident

B_1 = Event the driver's age is in the range 16-20

B_2 = Event the driver's age is in the range 21-30

B_3 = Event the driver's age is in the range 30-65

B_4 = Event the driver's age is in the range 66-99

Then

$$\begin{aligned}\Pr(B_1|A) &= \frac{\Pr(A|B_1)\Pr(B_1)}{\Pr(A|B_1)\Pr(B_1) + \Pr(A|B_2)\Pr(B_2) + \Pr(A|B_3)\Pr(B_3) + \Pr(A|B_4)\Pr(B_4)} \\ &= \frac{(0.06)(0.08)}{(0.06)(0.08) + (0.03)(0.15) + (0.02)(0.49) + (0.04)(0.28)} = 0.1584\end{aligned}$$