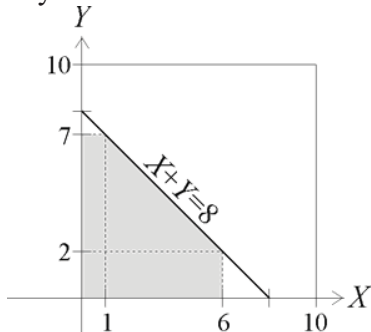


93.

Solution: C

Define X and Y to be loss amounts covered by the policies having deductibles of 1 and 2, respectively. The shaded portion of the graph below shows the region over which the total benefit paid to the family does not exceed 5:



We can also infer from the graph that the uniform random variables X and Y have joint density function $f(x, y) = \frac{1}{100}$, $0 < x < 10$, $0 < y < 10$

We could integrate f over the shaded region in order to determine the desired probability. However, since X and Y are uniform random variables, it is simpler to determine the portion of the 10×10 square that is shaded in the graph above. That is,

$$\begin{aligned} & \Pr(\text{Total Benefit Paid Does not Exceed 5}) \\ &= \Pr(0 < X < 6, 0 < Y < 2) + \Pr(0 < X < 1, 2 < Y < 7) + \Pr(1 < X < 6, 2 < Y < 8 - X) \\ &= \frac{(6)(2)}{100} + \frac{(1)(5)}{100} + \frac{(1/2)(5)(5)}{100} = \frac{12}{100} + \frac{5}{100} + \frac{12.5}{100} = 0.295 \end{aligned}$$