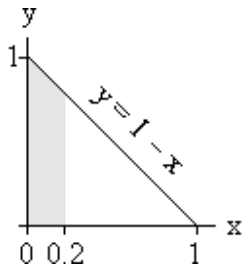


117. Solution: C

The domain of X and Y is pictured below. The shaded region is the portion of the domain over which $X < 0.2$.



Now observe

$$\begin{aligned}\Pr[X < 0.2] &= \int_0^{0.2} \int_0^{1-x} 6[1 - (x + y)] dy dx = 6 \int_0^{0.2} \left[y - xy - \frac{1}{2} y^2 \right]_0^{1-x} dx \\ &= 6 \int_0^{0.2} \left[1 - x - x(1 - x) - \frac{1}{2} (1 - x)^2 \right] dx = 6 \int_0^{0.2} \left[(1 - x)^2 - \frac{1}{2} (1 - x)^2 \right] dx \\ &= 6 \int_0^{0.2} \frac{1}{2} (1 - x)^2 dx = -(1 - x)^3 \Big|_0^{0.2} = -(0.8)^3 + 1 = 0.488\end{aligned}$$