

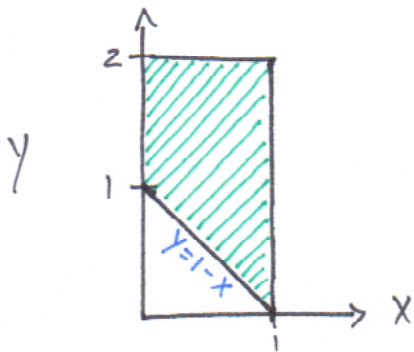
Problem 91

X: losses under collision insurance

Y: losses under liability insurance

$$P(X+Y > 1)$$

$$f(x,y) = \frac{2x+2-y}{4} \quad 0 < x < 1; 0 < y < 2$$



$$P(X+Y > 1)$$

$$\int_0^1 \int_{1-x}^2 \left(\frac{2x+2-y}{4} \right) dy \cdot dx$$

$$\int_0^1 \left(\frac{1}{2}xy + \frac{1}{2}y - \frac{1}{8}y^2 \right) \Big|_{1-x}^2 \cdot dx$$

$$\int_0^1 \left(x+1 - \frac{1}{2} - \frac{1}{2}x[1-x] - \frac{1}{2}[1-x] + \frac{1}{8}[1-x] \right) \cdot dx$$

$$\int_0^1 \left(\frac{5}{8}x^2 + \frac{3}{4}x + \frac{1}{8} \right) dx$$

$$\left(\frac{5}{24}x^3 + \frac{3}{8}x^2 + \frac{1}{8}x \right) \Big|_0^1 = \underline{\underline{\frac{17}{24}}} \quad \boxed{D}$$