

117. A company is reviewing tornado damage claims under a farm insurance policy. Let  $X$  be the portion of a claim representing damage to the house and let  $Y$  be the portion of the same claim representing damage to the rest of the property. The joint density function of  $X$  and  $Y$  is

$$f(x, y) = \begin{cases} 6[1 - (x + y)] & \text{for } x > 0, y > 0, x + y < 1 \\ 0 & \text{otherwise.} \end{cases}$$

Determine the probability that the portion of a claim representing damage to the house is less than 0.2 .

- (A) 0.360
- (B) 0.480
- (C) 0.488
- (D) 0.512
- (E) 0.520