

120. An insurance policy is written to cover a loss X where X has density function

$$f(x) = \begin{cases} \frac{3}{8}x^2 & \text{for } 0 \leq x \leq 2 \\ 0 & \text{otherwise.} \end{cases}$$

The time (in hours) to process a claim of size x , where $0 \leq x \leq 2$, is uniformly distributed on the interval from x to $2x$.

Calculate the probability that a randomly chosen claim on this policy is processed in three hours or more.

- (A) 0.17
- (B) 0.25
- (C) 0.32
- (D) 0.58
- (E) 0.83