

63. The warranty on a machine specifies that it will be replaced at failure or age 4, whichever occurs first. The machine's age at failure,  $X$ , has density function

$$f(x) = \begin{cases} \frac{1}{5} & \text{for } 0 < x < 5 \\ 0 & \text{otherwise.} \end{cases}$$

Let  $Y$  be the age of the machine at the time of replacement.

Determine the variance of  $Y$ .

- (A) 1.3
- (B) 1.4
- (C) 1.7
- (D) 2.1
- (E) 7.5