

36. A group insurance policy covers the medical claims of the employees of a small company. The value, V , of the claims made in one year is described by

$$V = 100,000Y$$

where Y is a random variable with density function

$$f(y) = \begin{cases} k(1-y)^4 & \text{for } 0 < y < 1 \\ 0 & \text{otherwise,} \end{cases}$$

where k is a constant.

What is the conditional probability that V exceeds 40,000, given that V exceeds 10,000?

- (A) 0.08
- (B) 0.13
- (C) 0.17
- (D) 0.20
- (E) 0.51