

116. Total hospital claims for a health plan were previously modeled by a two-parameter Pareto distribution with $\alpha = 2$ and $\theta = 500$.

The health plan begins to provide financial incentives to physicians by paying a bonus of 50% of the amount by which total hospital claims are less than 500. No bonus is paid if total claims exceed 500.

Total hospital claims for the health plan are now modeled by a new Pareto distribution with $\alpha = 2$ and $\theta = K$. The expected claims plus the expected bonus under the revised model equals expected claims under the previous model.

Calculate K .

- (A) 250
- (B) 300
- (C) 350
- (D) 400
- (E) 450