

8.

You are given:

- (i) Claim counts follow a Poisson distribution with mean θ .
- (ii) Claim sizes follow an exponential distribution with mean 10θ .
- (iii) Claim counts and claim sizes are independent, given θ .
- (iv) The prior distribution has probability density function:

$$\pi(\theta) = \frac{5}{\theta^6}, \quad \theta > 1$$

Calculate Bühlmann's k for aggregate losses.

- (A) Less than 1
- (B) At least 1, but less than 2
- (C) At least 2, but less than 3
- (D) At least 3, but less than 4
- (E) At least 4