

272. You are given:

- (i) The number of claims made by an individual in any given year has a binomial distribution with parameters $m = 4$ and q .
- (ii) The prior distribution of q has probability density function

$$\pi(q) = 6q(1-q), \quad 0 < q < 1.$$

- (iii) Two claims are made in a given year.

Determine the mode of the posterior distribution of q .

- (A) 0.17
- (B) 0.33
- (C) 0.50
- (D) 0.67
- (E) 0.83