

- 22.** You fit a Pareto distribution to a sample of 200 claim amounts and use the likelihood ratio test to test the hypothesis that  $\alpha = 1.5$  and  $\theta = 7.8$ .

You are given:

- (i) The maximum likelihood estimates are  $\hat{\alpha} = 1.4$  and  $\hat{\theta} = 7.6$ .
- (ii) The natural logarithm of the likelihood function evaluated at the maximum likelihood estimates is  $-817.92$ .
- (iii)  $\sum \ln(x_i + 7.8) = 607.64$

Determine the result of the test.

- (A) Reject at the 0.005 significance level.
- (B) Reject at the 0.010 significance level, but not at the 0.005 level.
- (C) Reject at the 0.025 significance level, but not at the 0.010 level.
- (D) Reject at the 0.050 significance level, but not at the 0.025 level.
- (E) Do not reject at the 0.050 significance level.