

[3-CAS.F04.28] A large retailer of computers issues a warranty with each computer it sells. The warranty covers any cost to repair or replace a defective computer within 30 days of purchase. 40% of all claims are easily resolved and do not involve any cost to replace or repair. If a claim involves a cost to replace or repair, the claim size is distributed as a Weibull with parameters $\tau = \frac{1}{2}$ and $\theta = 30$.

Which of the following statements are true?

~~(i) The expected cost of a claim is \$60.~~

~~(ii) The survival function at \$60 is 0.243.~~

(iii) The hazard rate at \$60 is 0.012.

~~A. (i) only.~~

~~B. (ii) only.~~

C. (iii) only.

~~D. (i) and (ii) only.~~

~~E. (ii) and (iii) only.~~

$$E[\text{cost}] = (.6) \cdot \theta \Gamma\left(1 + \frac{1}{\tau}\right) \\ = .6 \cdot 30 (3-1)! = 36$$

$$S(60) = P[\text{cost} > 60] \\ = (.6) \left[e^{-(60/30)^{1/2}} \right]$$

$$= (.6) (.243) \approx .146$$

$$h(60) = \frac{f(60)}{S(60)} = \frac{.6 \left[\frac{1}{2} \left(\frac{60}{30} \right)^{-1/2} \frac{1}{60} e^{-\sqrt{2}} \right]}{.6 \left[e^{-\sqrt{2}} \right]}$$

$$= .01179$$