

Solution to Q10.13.1.23

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Question: A girl calculates that the probability of her winning the first prize in a lottery is 0.08. If 6000 tickets are sold, how many tickets has she bought?

(A) 40 (B) 240 (C) 480 (D) 750

Solution: Let the random variable be X and p is the probability that she won the lottery

$$X = \begin{cases} 1 & \text{if she bought the ticket,} \\ 0 & \text{if she didn't buy the ticket,} \end{cases}$$

Number of tickets sold (n) = 6000

$$\Pr(X = 1) = 0.08$$

$$\frac{n(X = 1)}{n} = 0.08$$

$$n(X = 1) = 0.08 * 6000$$

$$n(X = 1) = 480$$