

41. Solution: E

Let

X = number of group 1 participants that complete the study.

Y = number of group 2 participants that complete the study.

Now we are given that X and Y are independent.

Therefore,

$$\begin{aligned} & P\{[(X \geq 9) \cap (Y < 9)] \cup [(X < 9) \cap (Y \geq 9)]\} \\ &= P[(X \geq 9) \cap (Y < 9)] + P[(X < 9) \cap (Y \geq 9)] \\ &= 2P[(X \geq 9) \cap (Y < 9)] \quad (\text{due to symmetry}) \\ &= 2P[X \geq 9]P[Y < 9] \\ &= 2P[X \geq 9]P[X < 9] \quad (\text{again due to symmetry}) \\ &= 2P[X \geq 9](1 - P[X \geq 9]) \\ &= 2\left[\binom{10}{9}(0.2)(0.8)^9 + \binom{10}{10}(0.8)^{10}\right]\left[1 - \binom{10}{9}(0.2)(0.8)^9 - \binom{10}{10}(0.8)^{10}\right] \\ &= 2[0.376][1 - 0.376] = 0.469 \end{aligned}$$