

Question #16135 a player has 30% of scoring a penalty kick in a soccer match,if there are 9 penalty kicks during a soccer match,find the probability that the player will: a)score none.(b)score at most 3.(c)score less than 4.(d)score at least 2.(e)score more than 3.(f)score exactly 5 penalty kicks.

Solution. The probability to score a penalty kick is 0.3. So the number of scored penalty kick has binomial distribution $Bin(0.3, 9)$ if all kicks are independent.

a) 0.7^9 .

b) $\sum_{k=0}^3 \binom{9}{k} 0.3^k 0.7^{9-k}$.

c) The same as b).

d) $\sum_{k=2}^9 \binom{9}{k} 0.3^k 0.7^{9-k}$.

e) $\binom{9}{5} 0.3^5 0.7^{9-4}$