Question: 1. The number of typing errors on a page follows a Poisson distr...

1. The number of typing errors on a page follows a Poisson distribution with a mean of 6.3. Find the probability of having exactly six (6) errors on a page. **(5 points)**

2. One bag contains 6 red, 2 blue, and 3 yellow balls. A second bag contains 2 red, 4 blue, and 5 yellow balls. A third bag contains 3 red, 7 blue, and 1 yellow ball. One bag is selected at random. If 1 ball is drawn from the selected bag, what is the probability that the ball drawn is yellow? **(5 points)**

3. In a viral pool test it is known that in a group of five (5) people, exactly one (1) will test positive. If they are tested one by one in random order for confirmation, what is the probability that only two (2) tests are needed? **(5 points)**

4. If one ball each is drawn from 3 boxes, the first containing 3 red, 2 yellow, and 1 blue, the second box contains 2 red, 2 yellow, and 2 blue, and the third box with 1 red, 4 yellow, and 3 blue. What is the probability that all 3 balls drawn are different colors? **(10 points)**

5. A basket of fruits contains eight (8) apples and ten (10) oranges. Half of the apples and half of the oranges are rotten. If one (1) fruit is chosen at random, what is the probability that a rotten apple or an orange is chosen? **(5 points)**

6. A small-time bingo card costs P100.00 for 5 games. The prize for the first three games is P5,000.00, the fourth is P10,000.00 and the last prize is P20,000.00. If 1,000 bingo cards are going to be sold and you could only win once, what is the expected value of a ticket? **(10 points)**

7. You pick a card from a deck. If it is a face card, you will win P500.00. If you get an ace, you will win P1,000. If the card you picked is red you get P100.00. For any other card, you will win nothing. Find the expected value that you can possibly win. **(10 points)**

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Expert Answer

Anonymous answered this
1,882 answers

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1

Poisson distribution

$$P(X=x) = \frac{e^{-\lambda}\cdot\lambda^{x}}{x!};\ x=0,1,2\ldots$$

$\lambda = 6.3$

$$\rightarrow P(X=6) = \frac{e^{-6.3}(6.3)^{6}}{6!} = 0.1595$$

2

Bag 1 (B1)	Bag 2 (B2)	Bag 3 (B3)
6 Red	2 Red	3 Red
2 Blue	4 Blue	7 Blue
3 Yellow	5 Yellow	1 Yellow
Total = 11	Total = 11	Total = 11

$$P(Y) = P(B1)P(Y) + P(B2)P(Y) + P(B3)P(Y)$$
$$= \left(\frac{1}{3}\right)\left(\frac{3}{11}\right) + \left(\frac{1}{3}\right)\left(\frac{5}{11}\right) + \left(\frac{1}{3}\right)\left(\frac{1}{11}\right)$$
$$= 0.2727$$

3

Probability of positive (+ve) $= \frac{1}{5}$

Probability of negative (-ve) $= 1 - 1/5 = 4/5$

$\Rightarrow$ Probability that 2 tests are needed is

$= P(-ve) * P(+ve)$

$= (4/5)(1/5)$

$= 4/25 = 0.16$

5

8 Apples → 4 rotten, 4 Good

10 Oranges → 5 rotten, 5 Good

} Total = 18

P(rotten apple or orange)

$= P(\text{rotten apple}) + P(\text{orange})$

$= \left(\frac{4}{18}\right) + \left(\frac{10}{18}\right)$

$= 0.7778$

Note:

According to chegg answering guidelines answered four questions.

Thank you.

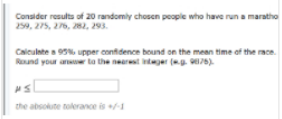
Comment >

Up next for you in Statistics and Probability

Suppose that θ1 and θ2 are unbiased estimators of the parameters θ. We know that V(θ1) = 10 and V(θ2) = 4. Which estimator is better and in what sense is it better? Calculate the relative efficiency of the two

See answer

Consider results of 20 randomly chosen people who have run a marathon. Their times, in minutes, are ...



See answer

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Q: 4. If one ball each is drawn from 3 boxes, the first containing 3 red, 2 yellow, and 1 blue, the second box contains 2 red, 2 yellow, and 2 blue, and the third box with 1 red, 4 yellow, and 3 blue. What is the probability that all 3 balls drawn are different colors? (10 points) 6. A small-time bingo card costs P100.00 for 5 games. The prize for the first three games is P5,000.0...

A: See answer 100% (1 rating)

Q: 5. A field is in the form of a regular pentagon. If the true bearing of side AB is N 30°30'E, determine the true azimuth from south of the following sides of the field: AB, BC, and CD. Assume that the corners of the field are labeled in a clockwise direction. a. Determine the interior Angles. b. Determine the true bearing and true azimuth of Side AB. c. Determine the true bearing...

A: See answer 100% (1 rating)

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