Answer on Question #616128 – Math – Statistics and Probability

Question

5. The probabilities of a boy passing English and Mathematics tests are a and b respectively. Find the probability of the boy failing both tests.

Solution

If the probability of a boy passing English and Mathematics tests are a and b respectively, then the probability of the boy falling English is (1 - a), and the probability of the boy falling Mathematics is (1 - b). So the probability of the boy falling both tests is

P = (1 - a)(1 - b) = 1-a-b+ab = 1 - (a+b) + ab

Answer: 1 - (a+b) + ab

Question

6. Statistics is a descriptive measurement obtained from a _____

observation

sample

experiment

population

Solution

Statistic (not to be confused with Statistics) - Characteristic or measure obtained from a sample.

Statistics - Collection of methods for planning experiments, obtaining data, and then organizing, summarizing, presenting, analyzing, interpreting, and drawing conclusions.

Answer: sample.

Question

7. The grade of student on six examinations were:

84, 91, 72, 68, 87, and 78.

What is the arithmetic mean of the grades?

88

60

70

80

Solution

The arithmetic mean of the grades is

$$\frac{84 + 91 + 72 + 68 + 87 + 78}{6} = 80.$$

Answer: 80.

Question

8. The scores of 5 students in an examination are:

6, 5, 8, 7 and 4.

Find the variance.

3

2

2.5

4.5

Solution

$$\sum x_i = 6 + 5 + 8 + 7 + 4 = 30.$$

$$\overline{x} = \frac{\sum x_i}{n} = \frac{30}{5} = 6.$$

$$\sum x_i^2 = 6^2 + 5^2 + 8^2 + 7^2 + 4^2 = 190.$$

The variance is

$$\sigma^2 = \frac{\sum x_i^2 - n\overline{x}^2}{n} = \frac{190 - 5 \cdot 6^2}{5} = 2.$$

Answer: 2.

Question

9. The scientific method for collection, summarization, presentation, analysis and interpretation of data is called _____.

statistics

investigation

biostatistics

questionairing

Answer: statistics.

Question

10. A _____ is the total collection of all the possible outcomes of an experiment

Sample space

Sample

Experiment

Statistics

Answer: sample space.