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EXERCISES OF MEDICAL STATISTICS

MEASURES OF CENTRAL TENDENCY AND VARIABILITY

1) A sample of young physicians have an income of 1,500 ± 500 euros (mean ± SD) per month. If the young physicians are given an additional income of 500 euros per month by the Regional Health Authority, their mean monthly income becomes:

A) 500 euros
B) 1,000 euros
C) 1,500 euros
D) 2,000 euros
E) 2,500 euros

2) and the standard deviation becomes:

A) 500 euros
B) 1,000 euros
C) 1,500 euros
D) 2,000 euros
E) 2,500 euros

PROBABILITY

3) If we assume that the probability of bearing a male child is 50%, which is the probability to have at least one male child out of four deliveries ?

A) 1/16
B) 1/4
C) 8/16
D) 11/16
E) 15/16

4) According to the World Health Organization the probability of bearing a male child is 51.4%. Using the real value of 51.4%, which is the probability to have at least one male child out of four deliveries ?

A) 0.0558
B) 0.0625
C) 0.2360
D) 0.2500
E) 0.9375
F) 0.9442

5) The prevalence of a disease increases. As a consequence, in the corresponding screening test:

A) sensitivity does not change
B) specificity does not change
C) negative predictive value decreases
D) positive predictive value increases
E) all previous responses are correct

6) Which is the value of the binomial coefficient $\binom{6}{4}$?

A) 24
B) 15
C) 10
D) 6
E) 4

7) Diastolic arterial pressure is normally distributed in a given population with mean = 85 mmHg and standard deviation = 10 mmHg. Which is the probability to observe a value ≥100 mmHg in that population?

A) 6.68 %
B) 7.14 %
C) 13.36 %
D) 14.28 %
E) 92.86 %

8) Which is the probability to observe a value of 100 mmHg or more extreme (PTOME) in that population?

A) 6.68 %
B) 7.14 %
C) 13.36 %
D) 14.28 %
E) 92.86 %

SAMPLING

9) Samples of 9 subjects are drawn from a population with a standard deviation of 12. Which is the standard deviation (standard error) of the means of these samples ?

A) 12
B) 9
C) 6
D) 4
E) 3

INFERENCE

10) How many degrees of freedom does a chi-square test have, when applied to a 4*3 contingency table ?

A) 12
B) 11
C) 8
D) 7
E) 6

11) The correlation coefficient r between two quantitative variables is equal to -5.8. Hence:

A) the two variables are positively correlated
B) the two variables are negatively correlated
C) there is no association between the two variables
D) the value of r is wrong
E) none of the previous answers is correct