

ETHIO EXAMS

Statistics And probability Mid Exam

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1) A factory has two machines A and B. Past record shows that machine A produced 60% of the items of output and machine B produced 40% of the items. Further, 2% of the items produced by machine A were defective and 1% produced by machine B were defective. All the items are put into one stockpile and then one item is chosen at random from this and is found to be defective. What is the probability that it was produced by machine B?

Answer =0.25

2)A bag contains 4 red and 3 black balls. A second bag contains 2 red and 4 black balls. One bag is selected at random. From the selected bag, one ball is drawn. Find the probability that the ball drawn is red.

to be defective. What is the probability that it was produced by machine B?

Answer =19/42

3)Three horses A, B and C are in a race, A is twice as likely to win as B and B is twice as likely to win as C. What are their probabilities of winning?

Answers = probability of winning of horses A,B, and C are 4/7 , 2/7 and 1/7 respectively.

4)Assume that the box contains 12 balls: 3 red, 4 blue, and 5 yellow. As in the text, you draw one ball, note its color, and if it is yellow replace it. If it is not yellow you do not replace it. You then draw a second ball and note its color.

(1) What is the probability that the second ball drawn is yellow?

(2) What is the probability that the second ball drawn is red?

5) In a class there are 27 boys and 14 girls. The teacher wants to select 1 boy and 1 girl to represent the class in a function. In how many ways can the teacher make this selection?

6) In a class there are 27 boys and 14 girls. The teacher wants to select 1 boy and 1 girl to represent the class in a function. In how many ways can the teacher make this selection?

7) In a bolt factory, machines A,B and C manufacture 25%, 35%, 40% respectively. Of the total

of their output 5%,4% and 2% are defective. A bolt is drawn and is found to be defective. What are the probabilities that it was manufactured by the machines A,B,C.

8) A computer producing factory has only two plants T1 and T2. Plant T1 produces 20% and plant T2 produces 80% of total computers produced. 7% of computers produced in the factory turn out to be defective. It is known that P (computer turns out to be defective given that it is produced in plant T1) =10P (computer turns out to be defective given that it is produced in plant T2).

where P(E) denotes the probability of an event E. A computer produced in the factory is randomly selected and it does not turn out to be defective. Then the probability that it is produced in plant T2 is

9) One bag contains 4 white and 3 black and 2 nd bag contains 3 white and 5 black balls. One ball is drawn from the first bag and placed unseen in the second bag. What is probability that a ball now drawn from the second bag is black?

10) A lot consists of 10 good articles, 4 with minor defects, and 2 with major defects. One article is chosen at random. What is the probability that it has no defects?

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Ethio Exam your Choose