

Answer on Question #73554 – Math – Statistics and Probability

Question

A bag contains 5 white and 8 red balls. Two drawing of 3 balls are made such that

(a) balls are replaced before the second trial and

(b) balls are not replaced before the second trial.

Find the probability that the first drawing will give 3 white and second red balls in each case.

Solution

$$(a) P_1 = \frac{5}{13} * \frac{4}{12} * \frac{3}{11} = \frac{5}{143}.$$

$$P_2 = \frac{8}{13} * \frac{7}{12} * \frac{6}{11} = \frac{28}{143}.$$

$$P = P_1 P_2 = \frac{5}{143} * \frac{28}{143} = \frac{140}{20449} \approx 0.0068.$$

$$(b) P_1 = \frac{5}{13} * \frac{4}{12} * \frac{3}{11} = \frac{5}{143}.$$

$$P_2 = \frac{8}{10} * \frac{7}{9} * \frac{6}{8} = \frac{7}{15}.$$

$$P = P_1 P_2 = \frac{5}{143} * \frac{7}{15} = \frac{7}{429} \approx 0.0163.$$