Answer on Question #45513, Math — Statistics and Probability

    A box contains 3 red marbles and 7 white marbles. A marble is drawn from the box and the marble is replaced by a marble of the other colour. A second marble is drawn from the box. What is the probability that second marble is red?

Solution

Here we are going to use the Total probability law. Probability of drawing red marble at the first time is 0.3. After replacing it with white, for second drawing probability is 0.2. Probability of drawing white marble at the first time is 0.7. After replacing it with red, for second drawing probability to draw red is 0.4. Hence:

$$P = 0.3 \cdot 0.2 + 0.7 \cdot 0.4 = 0.34$$