Answer on Question #60156 – Math – Statistics and Probability

Question

A box contains 10 red and 12 white rose flowers. Flowers are picked up at random one by one without replacement.
What is the probability that there are two red and three white flowers in the first five picked up?

Solution

$$P = \frac{\binom{10}{2}\binom{12}{3}}{\binom{22}{5}} = \frac{\frac{10!}{2!8!} \cdot \frac{12!}{3!9!}}{\frac{22!}{5!17!}} = \frac{\frac{10 \cdot 9}{2} \cdot \frac{12 \cdot 11 \cdot 10}{3 \cdot 2}}{\frac{22 \cdot 21 \cdot 20 \cdot 19 \cdot 18}{5 \cdot 4 \cdot 3 \cdot 2}} = \frac{5 \cdot 4}{2} \cdot \frac{10}{22} \cdot \frac{9}{21} \cdot \frac{12}{20} \cdot \frac{11}{19} \cdot \frac{10}{18} = \frac{2376000}{6320160} = \frac{50}{133} \approx$$

$\approx 0.3759.$

Answer: 0.3759.