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
(i) First 3 flowers are red
(ii) There are 2 red and 3 white flowers
In the first four picked up.
(iii) The third one is red given that the first 2 are white.

Solution

(i) Probability that the first 3 flowers are red: P = 10/22*9/21*8/20 = 0.078;
(ii) Statement 'There are 2 red and 3 white flowers in the first four picked up' is incorrect;
(iii) The third one is red given that the first 2 are white:

P('the third one is red'|'the first two are white')=$\dfrac{P(\prime\,the\,third\,one\,is\,red\prime,\prime the first\,two\,are\,white\prime)}{P(\prime the\,first\,two\,are\,white\prime)}=$

$$=\frac{\frac{12}{22}\cdot\frac{11}{21}\cdot\frac{10}{20}}{\frac{12}{22}\cdot\frac{11}{21}}=\frac{10}{20}=0.5.$$

Answer: (i)0.078; **(ii)** - ; **(iii)** 0.5.