

## Answer on Question #83125 - Math — Statistics and Probability

### Question

A ball is drawn at random from a box containing 12 red, 18 white, 19 blue and 15 orange balls. Find the probability that

- (i) it is red or blue,
- (ii) white, blue or orange,
- (iii) neither white nor orange.

### Solution

There are  $12+18+19+15=64$  balls in the box.

(i) There are  $12+19=31$  red and blue balls.

Then

$$P\{\text{a ball is red or blue}\} = \frac{31}{64} = 0.484375.$$

(ii) There are  $18+19+15=52$  white, blue and orange balls in the box. Then

$$P\{\text{a ball is white, blue or orange}\} = \frac{52}{64} = 0.8125.$$

(iii) If a ball is neither white nor orange it is red or blue. The probability that it is red or blue we found in (i). So

$$P\{\text{a ball is neither white nor orange}\} = P\{\text{a ball is red or blue}\} = 0.484375.$$

**Answer:** (i) 0.484375, (ii) 0.8125, (iii) 0.484375.