

## Answer on Question #59818 – Math – Statistics and Probability

### Question

A marble is drawn at random from a box containing 10 red, 30 white, 20 blue and 15 orange marbles. Find probability that it is

- (i) Orange or red;
- (ii) Not red or blue;
- (iii) Not blue;
- (iv) Red, white or blue.

### Solution

Total amount of marbles is  $10 + 30 + 20 + 15 = 75$ . A marble is drawn at random from a box containing 10 red, 30 white, 20 blue and 15 orange marbles

(i) Probability of the event 'it is orange or red' is

$$P = (15 + 10)/75 = 25/75 = 1/3 \approx 0.33.$$

(ii) Probability of the event 'it is not red or blue (then it is white or orange)' is

$$P = (30 + 15)/75 = 45/75 = 9/15 = 3/5 = 0.6.$$

(iii) Probability of the event 'it is not blue (then it is red, white or orange)' is

$$P(\text{'it is not blue'}) = 1 - P(\text{'it is blue'}) = 1 - 20/75 = (75 - 20)/75 = 55/75 = 11/15 \approx 0.733.$$

(iv) Probability of the event 'it is red, white or blue' is

$$P = (10 + 30 + 20)/75 = 60/75 = 12/15 = 4/5 = 0.8.$$

**Answer:** (i)  $1/3$ ; (ii)  $0.6$ ; (iii)  $11/15$ ; (iv)  $0.8$ .