4 red balls and 6 black balls

Number of balls drawn in succession = 2

Total number of balls = 10

Number of draws in an experiment: 5

Number of ways in which 10 objects can be grouped in batches of 2:

10 choose 2 = 45

Number of ways in which 2 balls of red color can be chosen together:

4 choose 2 = 6

Number of ways in which 2 balls of black color can be chosen together:

6 choose 2 = 15

Number of ways in which 1 black ball and 1 red ball can be chosen together:

6 choose 1 \* 4 choose 1 = 24

Possible combinations:

2 red = 6/45 = 2/15

2 black = 15/45 = 1/3

1 red, 1 black = 24/45 = 8/15