Assignment 17.3 : Problem Statement

Two balls are drawn at random in succession without replacement from an urn containing 4 red balls and 6 black balls.

Find the probabilities of all the possible outcomes.

Solution:

RR (4*3=12 ways),
RB (4*6=24 ways),
BR (6*4=24 ways),
BB (6*5=30 ways).

Double check this total = all of the cases: 12+24+24+30=90

90 total ways to draw two balls.

Therefore probability for each of the possible outcomes as follows :

1. P(Both being Red) = P(R,R) = 4/10 * 3/9 = 0.13333
2. P(First being Red & Second being Black) = P(R,B) = 4/10 * 6/9 = 0.26667
3. P(First being Black & Second being Red) = P(B,R) = 6/10 * 4/9 = 0.26667
4. P(Both being Black) = P(B,B) = 6/10 * 5/9 = 0.33333