**Module 2: Statistical Inference**

Module 2: Assignment

**Task 1:** What is the probability of getting a 2 or a 5 when a die is rolled?

**ANSWER:**

Addition rule formula…

P(A or B) = P(A) + P(B) – P(A intersection B)

But in our case this both events are exclusive and will not intersect each other, like if there were 2 dices then their intersection stand a probability.

P(2 or 5) = P(2) + P(5) = 1/6 + 1/6 = 2/6 = 1/3

**Task 2:**

Consider a pack contains 4 blue, 2 red and 3 black pens. If a pen is drawn at random from the pack, replaced and the process repeated 2 more times, what is the probability of drawing 2 blue pens and 1 black pen?

**ANSWER:**

We have total of 9 pens **4 + 2 + 3 = 9**, and **event will be 3**, as we have 3 trials,

Another thing to consider being we are **replacing pens back** in the pack, so all color pens stand even chance of getting picked, that is

Let’s assign events, **BL = Blue** pen is picked and **LK = Black** Pen is picked, so let’s draw a hypothesis for 3 trials…

1ST – BL-BL-LK, 2ND – BL-LK -BL, 3RD – LK-BL-BL

**Task 3:** When two dice are rolled, find the probability of getting a greater number on the first die than the one on the second, given that the sum should equal 8.

**ANSWER:**

Possible events summing to 8 = (2&6), (3&5), (4&4), (5&3) and (6&2)

Greater number is first die is supported in only two events = (5&3) and (6&2)

So, the probability is