

Module 2: Assignment Questions:

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

*Ans. The probability =  $1/6 + 1/6 = 2/6 = 1/3$*

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?

*Ans  $2/9 * 1/9 = 2/81$*

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.

*Let the event of getting a greater number on the first die be G.*

*There are 5 ways to get a sum of 8 when two dice are rolled =  $\{(2,6), (3,5), (4,4), (5,3), (6,2)\}$*

*And there are two ways where the number on the first die is greater than the one on the second given that the sum should equal 8,  $G = \{(5,3), (6,2)\}$*

*Therefore,  $P(\text{Sum equals } 8) = 5/36$  and  $P(G) = 2/36$*

*Now,  $P(G / \text{Sum equals } 8) = P(\text{sum equals } 8) P(G | \text{sum equals } 8)$   
 $= (5/36)(2/36) = 2/5$*