

# Probability and Random Variables Assignment

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## 1 Question 11(a)

Given the fourth term of the A.P is 22

15th term of A.P. is 66

Let first term of A.P. be  $a$

Let common difference of A.P. be  $d$

The  $n$ th ( $a_n$ ) term of any Arithmetic progression is given by

$$a_n = a + (n - 1)d$$

$$\text{So, } a_4 = a + 3d = 22$$

$$a_{15} = a + 14d = 66$$

Subtracting above 2 equations we get,

$$11d = 44$$

$$d = 4$$

Putting the value of  $d$  in  $a_4$  equation

$$a + 3(4) = 22$$

$$a = 10$$

Hence 1st term of the A.P. is 10 and common difference is 4.

Sum of an A.P till  $n$  terms is given by

$$S_n = \left(\frac{n}{2}\right)(2a + (n - 1)d)$$

$$S_8 = \frac{8}{2}(2(10) + (8 - 1)4)$$

$$S_8 = 4(20 + 28)$$

$$S_8 = 192$$