Assignment 1

AI1110: Probability and Random Variables

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Question 2(b)

Question: Shahrukh opened a Recurring Deposit Account in a bank and deposited ₹800 per month for 1.5 years. If he received /rupee$15,084$ at the time of maturity, find the rate of interest per annum.

Solution: Let us first bring up the general case.

Let,

a) Deposit per month be 'd'.

b) Time(in months) be 't'.

c) Total received amount be 'r'.

d) Total interest be 'i'.

e) Rate of interest 'I'.

Total Interest would be the Total amount received minus the Total amount deposited, also Rate of Interest per annum would be Total Interest divided by time in years.

$\therefore i = r - d * t$ and $I = \dfrac{i * 12}{t}$

Now the values given in the question are:

$d =$ ₹800, $t = 18$(as 1.5 years is equal to $1.5 * 12$ months, i.e 18 months), $r =$ ₹$15,084$.

$\therefore i =$ ₹$15,084$ $-$₹$(800 * 18)$

$\Rightarrow i =$ ₹$15,084$ $-$₹$14,400$

$\Rightarrow i =$ ₹684

Now $I = \dfrac{i * 12}{t} \Rightarrow I = \dfrac{684 * 12}{18}$

$\therefore I =$ ₹456

$\therefore$ Rate of interest per annum is ₹456.