

Assignment of Unit 3 by Siddhant Bhatt

Q1 Find out the premiums for policies maturing at the age of 46 years from the data given in the table below.

Maturity Age x	45	50	55	60	65
Yearly Premium $f(x)$	2.871	2.404	2.033	1.862	1.712

Q2 Work out the number of students who obtained marks between 40 and 45 from the table given below

Marks	No. of students
30-40	31
40-50	42
50-60	51
60-70	35
70-80	31

Q3 Estimate the value of $f(7.5)$ from the following data:

x	1	2	3	4	5	6	7	8
$f(x)$	1	8	27	64	125	216	343	512

Q4 Find out a second degree polynomial which passes through $(0, 1)$, $(1, 3)$, $(2, 7)$ and $(3, 13)$.

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Q15 Using Lagrange's formula find out the form of the function given by

x	3	2	1	-1
$f(x)$	3	12	15	-21

Q16 Show that $\Delta^3 \left(\frac{1}{x} \right) = \frac{-1}{abcd}$

Q17 Calculate (upto 3 places of decimal) $\int_2^{10} \frac{dx}{1+x}$

by dividing the range into eight equal parts. (Using Simpson's one-third rule)

Q18 Using trapezoidal rule, calculate the value of the integral $\int_4^{5.2} \log x \, dx$, given

x	4.0	4.2	4.4	4.6	4.8	5.0	5.2
$\log x$	1.3863	1.4351	1.4876	1.5260	1.5686	1.6094	1.6486