Q21 Regression a, b $f(x) = y = a \cdot e^{bx}$

x	1.2	2.8	4.3	5.4	6.8	7.9
y	7.5	16.1	38.9	67.0	146.6	266.2

$n = 6$

1790.328 28.4 542.3 $\Sigma = 401.02$

$$a = \frac{n \Sigma x_i y_i - (\Sigma x_i)(\Sigma y_i)}{n(\Sigma x_i)^2 - (\Sigma y_i)^2} \qquad b = \bar{y} - a\bar{x}$$

$\rightarrow$ mean

80.56 294089.27

x						
y	9	45.08	167.27	361.8	996.88	210.298

~~x^2 1.44 7.84 18.49 29.16 46.24 62.41~~

~~$\Sigma 839.36$~~

~~y^2 56.25~~

$$\frac{4659.352}{289279.93} = 0.016 = a$$

$$b = 90.389 - \frac{0.016 \cdot 4.733}{0.076} = -90.306$$

Q3) Numerical $\int_0^{2.5} f(x)\,dx$ use two method write which one is accurate

x	0	0.5	1.0	1.5	2.0	2.5
f(x)	1.5000	2.000	2.0000	1.6364	1.2500	0.9565

Troporaid $\Rightarrow$ $I = \frac{h}{2}\left[f(x_0) + 2\sum_{i=1}^{n-1} f(x_i) + f(x_n)\right]$ $h = \frac{b-a}{n} \rightarrow 2.5 \rightarrow 6$

$= 0.416$

$I = 0.208 \cdot \left[1.5000 + 2 \cdot \sum_{i=1}^{5} f(x_i) + 0.9565\right] = 19.2265 \cdot 0.2$

8.3864

6.47

$= 3.99112 \simeq 4$

Simpsons 1/3 $\rightarrow$ $I = \frac{h}{3}\left[f(x_0) + 4f(x_1) + f(x_2)\right]$ $h = 0.416$

$I = 0.1386\left[1.5000\right.$

Simpsons methods are more accurate as I know.