Linear Law 2

1) The table shows experimental values of variables s and t.

t	5	15	30	70	100
s	1305	349	152	55	36

(i) By plotting a suitable straight line graph, show that s and t are related by the equation $s = kt^n$, where k and n are constants. [4]

(ii) Use your graph to find the value of k and of n. [4]

(iii) Estimate the value of s when $t = 50$. [2]

2) The table shows experimental values of two variables x and y.

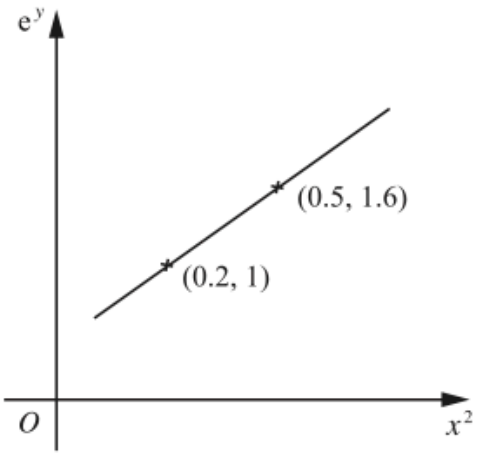
x	2	4	6	8
y	2.25	0.81	0.47	0.33

(i) Using graph paper, plot xy against $\frac{1}{x}$ and draw a straight line graph. [3]

(ii) Use your graph to express y in terms of x. [5]

(iii) Estimate the value of x and of y for which $xy = 4$. [3]

3) Variables x and y are such that, when e^y is plotted against x^2, a straight line graph passing through the points (0.2, 1) and (0.5, 1.6) is obtained.



(i) Find the value of e^y when $x = 0$. [2]

(ii) Express y in terms of x. [3]

Linear Law 2

4)

x	2	4	6	8	10
y	14.4	10.8	11.2	12.6	14.4

The table shows experimental values of two variables, x and y.

(i) Using graph paper, plot xy against x^2. [2]

(ii) Use the graph of xy against x^2 to express y in terms of x. [4]

(iii) Find the value of y for which $y = \frac{83}{x}$. [3]

5)

x	0.100	0.125	0.160	0.200	0.400
y	0.050	0.064	0.085	0.111	0.286

The table above shows experimental values of the variables x and y.

(i) On graph paper draw the graph of $\frac{1}{y}$ against $\frac{1}{x}$. [3]

Hence,

(ii) express y in terms of x, [4]

(iii) find the value of x for which $y = 0.15$. [2]

6)

The table shows experimental values of two variables x and y.

x	2	4	6	8
y	2.25	0.81	0.47	0.33

(i) On the graph paper below, plot xy against $\frac{1}{x}$ and draw a straight line graph. [3]

xy				
$\frac{1}{x}$				

(ii) Use your graph to express y in terms of x. [5]

(iii) Estimate the value of x and of y for which $xy = 4$. [3]