

Chapter 9 Variation: **Assignment**

Name: _____

- 1** The time in days (d) taken to erect the frame of a house varies inversely to the number of men (n) working on the job as shown in the table below.

n	1	2	4	5	10	20
d	20	10	5	4	2	1

- a** What is the variation equation linking n and d ?
- b** What is the constant of variation?
- c** How many days would it take to erect the frame with 8 men?
- 2** The table below gives data for two variables x and y . The relationship between x and y is non-linear. A log transformation can be applied to the variable x to linearise the data.

x	1.5	3.8	10.7	28.3	57.8	110.2	148.3	182.9	201.6
y	9.6	15.7	22.4	28.8	33.4	37.6	39.6	40.9	41.5

- a** Apply the log transformation to the data and then plot the points on a graph, checking to see that it is linear.
- b** Find the equation that shows the relationship between y and $\log_{10} x$. Give your answer using the nearest whole number.
- c** Use your equation to predict the value of y when x is 240. Write your answer correct to one decimal place.
- 3 a** For the data in the table below, apply an appropriate transformation to the variable x to linearise the data. Show your results in a table and then plot the graph of the linearized form.

x	0.2	1.6	3.6	7.8	9.4	10.6
y	32.9	64.4	194.4	792.9	1136.9	1439.9

- b** Write the equation of the line which shows the relationship between x and y . Give your answer with values correct to one decimal place.