

11 A student records the time a pendulum takes to swing for different lengths of pendulum.

The student decides to plot a graph of $\log_{10} T$ against $\log_{10} l$ where T is the time in seconds that the pendulum takes to return to its start position and l is the length in metres of the pendulum.

They use a model for $\log_{10} T$ in terms of $\log_{10} l$ of the form $\log_{10} T = \log_{10} k + n \log_{10} l$.

The student records the following data points.

$\log_{10} l$	-0.097	0.146
$\log_{10} T$	0.254	0.376

(a) Determine the values of k and n that best model the data. Give your values correct to 2 significant figures. [4]

(b) Using these values of k and n , write the student's model as an equation expressing T in terms of l . [2]