Plotting log values converts an exponential graph into a straight line which helps establish a relationship between variables in experimental data.

So, find the equation of this line.

Find the gradient using the two points given, zero, zero and two, six.

Gradient, m, equals six subtract zero divided by two subtract zero, which equals three.

Substitute the gradient into y equals m x plus c, here c equals zero as the line cuts the y axis at zero.

So, the equation is Log to the base four of y equals three x.

Three x needs to be converted into log base four to match the y axis. Using the log to rule

log to the base a of a is equal to one.

Three x then equals three x log to the base four of four.

Using the rule m log base a N equals log base a to N to the power of m.

Three x log to the base four of four becomes log to the base four of four to the power of three x.

As both sides of the equation are in the same logarithmic form, remove the logs to obtain y equals four to the power of three x.

Using the index rule a to the power of m all to the power of n equals a to the power of mn, four to the power of three x becomes four to the power of three all to the power of x

So, y equals sixty- four to the power of x.

Remember your logs and indices rules.