

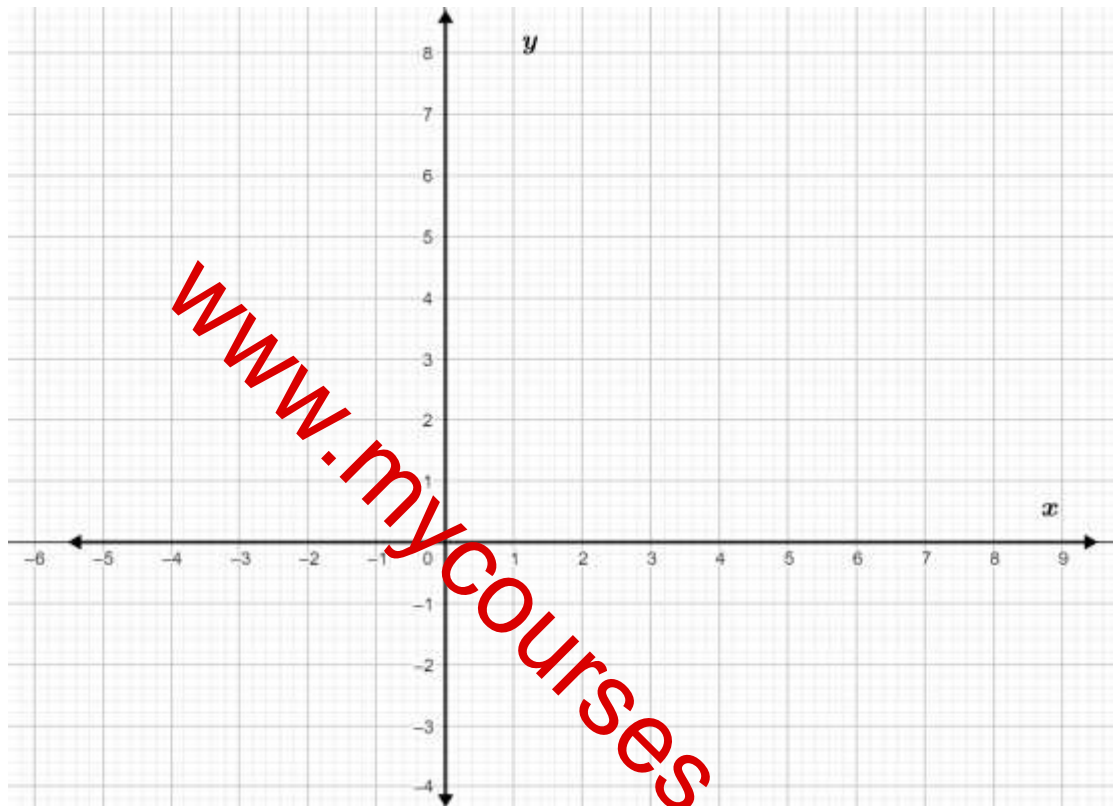
ACTIVITY 2.4 [16 Marks] - Investigating the inverse of an exponential function.

Consider the exponential function $h(x) = 2^x$

2.4.1 Complete the table below. (2)

x	-3	-2	-1	0	1	2	3
$h(x) = 2^x$							

2.4.2 Use the table above to sketch the function $h(x)$ in the grid below. (2)



2.4.3 Draw the line $y = x$ on the same grid in 2.4.2. Indicate it as a dashed line. (1)

2.4.4 Write down the equation of the inverse of $h(x)$ in the form $h^{-1}(x) = \dots\dots\dots$ (2)

2.4.5 Complete the table below. (3)

y	-3	-2	-1	0	1	2	3
$x = 2^y$							

2.4.6 Use the table above to sketch the inverse function $x = 2^y$ in the grid used in 2.4.2 (2)

2.4.7 Write down the domain and range of $h^{-1}(x)$ (2)

2.4.8 State a conclusion about the x – intercept of a logarithmic function written in the form: $y = \log_a x$. Suggest a reason for your answer. (2)

TOTAL = 60 MARKS