we have seen how to write some numbers in index and log forms like 36 is 6^2 or log_6^{36}=2.

And in yesterday's lesson, we tried some numbers by reversing logs back to index numbers e.g log_3^{81}= 4 is 81 = 3^4

In today's we would like to build on that. We use already acquired skills to find unknowns given logs.

Activity;

Find the values of x in each of the following equations;

a) $log_3^{243} = x$

Response

We write the log back to index form,

$243 = 3^x$,

But $243 = 3x3x3x3x3 = 3^5$

Implying that; $3^5 = 3^x$

Since the bases are the same, then powers should also be the same for the **equal sign** to stand; thus x is equivalent to 5.

3	243
3	81
3	27
3	9
3	3
	1

b) $log_x^8 = 3$

Response

We write the log back to index form,

$8 = x^3$,

But $8 = 2x2x2 = 2^3$

Implying that; $2^3 = x^3$

Since the powers are the same, then bases should also be the same for the **equal sign** to stand; thus x is equivalent to 2.

2	8
2	4
2	2
	1

c) $log_5^x = 7$

d) $log_{10}^{1000} = x$

e) $log_8^x = \frac{2}{3}$

f) $log_9^{27\sqrt{3}} = x$

g) $log_{\frac{1}{9}}^x = -2$

h) $log_{\frac{1}{2}}^{\frac{1}{16}} = x$