

1.) Given that $\log_3 x = y$, express $\log_9 x$ in terms of y .

2.) If $\log_a 2 = x$ and $\log_a 6 = y$, find in terms of x and y :

a $\log_7 6$ **b** $\log_6 2$ **c** $\log_7 36$

d $\log_a 24$ **e** $\log_6 12$ **f** $\log_2 3$

3.) Given that $\log_4 a = b$ express y in terms of b .

a $y = \log_4 a^2$ **b** $y = \log_{16} a$

c $y = \log_{\frac{1}{4}} a^2$ **d** $y = \log_{\frac{1}{16}} \sqrt{a}$

4.) Solve these equations to find the value of x to 3 significant figures.

a $2^{x+2} = 5^{x-3}$ **b** $3^{2-x} = 4^{2x-5}$ **c** $3^{\frac{x}{3}} = 5^{x+3}$

e $e^{3x-1} = 3^x$ **f** $4e^{3x-2} = 244$ **g** $35e^{-0.001x} = 95$