

How do you find $\log_2 7$ on your calculator ?

Most calculators only have 2 buttons for finding logarithms: $\boxed{\log}$ and $\boxed{\ln}$.

$\log x$ means $\log_{10} x$, and $\ln x$ means $\log_e x$.

(e is a special number, approximately equal to 2.71828.

You will learn the full significance of e in precalculus and calculus.)

To find a logarithm using any base other than 10 or e ,
you need the change of base formula.

$$\log_b x = \frac{\log x}{\log b} = \frac{\ln x}{\ln b}$$

For example,

$$\log_2 7 = \frac{\log 7}{\log 2} = \frac{\ln 7}{\ln 2}$$

NOTE: The base (2) is in the logarithm in the bottom of the fraction.

If your scientific calculator has a two line display, you can type in

$$\boxed{\log} \boxed{(} \boxed{7} \boxed{)} \boxed{\div} \boxed{\log} \boxed{(} \boxed{2} \boxed{)} \boxed{=}$$
 or $\boxed{\ln} \boxed{(} \boxed{7} \boxed{)} \boxed{\div} \boxed{\ln} \boxed{(} \boxed{2} \boxed{)} \boxed{=}$

If your scientific calculator has only a one line display, you can type in

$$\boxed{7} \boxed{\log} \boxed{\div} \boxed{2} \boxed{\log} \boxed{=}$$
 or $\boxed{7} \boxed{\ln} \boxed{\div} \boxed{2} \boxed{\ln} \boxed{=}$

You should get an answer around 2.807354922.

You can check the answer by finding $2^{2.807354922}$. You should get 7.

NOTE:

When working with logarithms, you should keep at least 4 decimal places for accuracy.

If you said the answer was 2.8, when you checked $2^{2.8}$, you would only get 6.9644 instead of 7.

Logarithms are often used in questions involving \$\$money\$\$.

If you wouldn't want your paycheck rounded down a lot, don't round down your logarithms a lot (unless you're working on Enable, in which case, read the instructions carefully on how many decimal places are wanted).

Practice on your calculator and make sure you can get the following answers:

$$\log_5 125 = 3$$

$$\log_3 15 = 2.4649735\dots$$

$$\log_{11} 4 = 0.57812965\dots$$