



Logarithms

A Logarithm is an Exponent.

$$10^0 = 1, \text{ and } \log 1 = 0$$

$$10^1 = 10, \text{ and } \log 10 = 1$$

$$10^2 = 100, \text{ and } \log 100 = 2$$

$$\text{If } 10^3 = 1,000 \text{ then } \log 1,000 = \underline{\hspace{2cm}}$$

$$\text{If } 10^4 = 10,000 \text{ then } \log 10,000 = \underline{\hspace{2cm}}$$

What happens when the logarithm is not a whole number?

Think about $\log 3$.

3 is between 1 and 10.

So $\log 3$ will be between 0 and 1. Why?

Will $\log 3$ be closer to 0 or 1? Explain your thinking.

Enter 3 on your calculator. Now press the **[log]** key.

$\log 3 = \underline{\hspace{2cm}}$ Is this what you expected? Why or why not?

Write 3 as a power of 10. $\underline{\hspace{2cm}}$

Work these problems with another student. Use your calculator to find the logs.

1. Will $\log 18$ be closer to 1 or 2? Explain your thinking.

$\log 18 = \underline{\hspace{2cm}}$ Write 18 as a power of 10. $\underline{\hspace{2cm}}$

2. $\log 8463$ will be between $\underline{\hspace{2cm}}$ and $\underline{\hspace{2cm}}$ Explain.

$\log 8463 = \underline{\hspace{2cm}}$ Write 8463 as a power of 10. $\underline{\hspace{2cm}}$

3. $\log 352 = \underline{\hspace{2cm}}$ Write 352 as a power of 10. $\underline{\hspace{2cm}}$

4. What can you say about $\log 0.7$? Explain.

$\log 0.7 = \underline{\hspace{2cm}}$ Was this what you expected?