

Why 1/0 Has No Value

If you try to work out $\frac{1}{0}$ on your calculator, you may get the message 'Math Error'. $\frac{1}{0}$ has no value. Why is this?

If we divide two number, and change one or both of the numbers very slightly, we expect the answer to be only slightly changed. This is not the case when we find $\frac{1}{0}$. Suppose we change the denominator, 0, slightly so that it is small and positive., say x . Then $\frac{1}{x}$ is large and positive. If we change the denominator so that it is small and negative, say y , then $\frac{1}{y}$ is large and negative.

It is because of this large change in our answer if the denominator is changed only slightly that we say $\frac{1}{0}$ has no value.