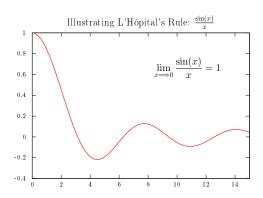
The figure to the right provides an illustration of L'Hôpital's Rule. Recall that this rule can be applied when taking the limit as  $x \longrightarrow x_a$  of a ratio of two functions where the ratio approaches the indeterminate form  $\frac{0}{0}$ ; in the case where both functions are



differentiable at  $x_a$ , the ratio approaches the ratio of their derivatives. In the case illustrated both  $\sin(x)$  and  $x \longrightarrow 0$  as we approach the origin, but the ratio of their derivatives,  $\frac{\cos(x)}{1} \longrightarrow 1$ . L'Hôpital's Rule also applies in the case of the indeterminate form  $\frac{\infty}{\infty}$ .