Problem statement Use your calculator to try to figure out what might be the value of

$$\lim_{x \to 0} \frac{(\cot x)(1 - \cos 2x)}{x}$$

by tracing the graph of $\frac{(\cot x)(1 - \cos 2x)}{x}$ for x near 0. Show the graph. Then find the exact value of the limit by using a computation based on trig formulas and the fact that $\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$.