Problem of the Week — September 14, 2009

Suppose f is a continuous function on $[0, \infty)$ such that $f(0) = 0$. Show that for each number c in $[0, \infty)$ we can find a number x in the interval $[0, \infty)$ such that

$$x^2 + [f(x)]^2 \;=\; c\ .$$

Solutions accepted until 4 pm 9/25/09

You may submit complete solutions to Brian Jones or Marie Snipes either via email or hard copy; however, if you submit a hard copy, it must have a time-stamp.