

## Answer on Question #64113 – Math – Calculus

### Question

Suppose  $f$  is an odd function which is differentiable everywhere and  $a$  is a positive number. Show that for every  $a$  there exists  $c$  belong  $(-a, a)$  such that

$$f'(c) = f(a)/a$$

### Solution

Since  $f$  is odd,

$$f(-a) = -f(a).$$

Since  $f$  is differentiable everywhere, the Mean Value Theorem says that there exists  $c$  between  $-a$  and  $a$  such that

$$f'(c) = \frac{f(a) - f(-a)}{a - (-a)} = \frac{2f(a)}{2a} = \frac{f(a)}{a}$$