Exercise 1 *Let*

$$f(x) = \begin{cases} |x| & \text{if } x < 1, \\ \dfrac{x^2 - a^2}{x - a} & \text{if } x > 1. \end{cases}$$

If $\lim_{x \to 1} f(x)$ *exists, what must be the value of* a*?*

$$a = \boxed{0}$$

Hint: *Equate the two one sided limits of* f *at* $x = 1$ *to obtain an equation involving* a*.*