

Exercise 1 Let $S(x) = \frac{|x|}{x}$. Does the limit exist? If it does, give its value. Otherwise write DNE.

$$\lim_{x \rightarrow -4} S(x) = \boxed{-1}$$

Hint: Close to $x = -4$, $S(x) = \frac{-x}{x}$.

Exercise 1.1 Let $S(x) = \frac{|x|}{x}$. Does the limit exist? If it does, give its value. Otherwise write DNE.

$$\lim_{x \rightarrow 0^+} S(x) = \lim_{x \rightarrow 0^+} \frac{\boxed{x}}{x} = \boxed{1}$$

Exercise 1.1.1 Let $S(x) = \frac{|x|}{x}$. Does the limit exist? If it does, give its value. Otherwise write DNE.

$$\lim_{x \rightarrow 0^-} S(x) = \lim_{x \rightarrow 0^-} \frac{\boxed{-x}}{x} = \boxed{-1}$$

Exercise 1.1.1.1 Let $S(x) = \frac{|x|}{x}$. Does the limit exist? If it does, give its value. Otherwise write DNE.

$$\lim_{x \rightarrow 0} S(x) = \boxed{DNE}$$
