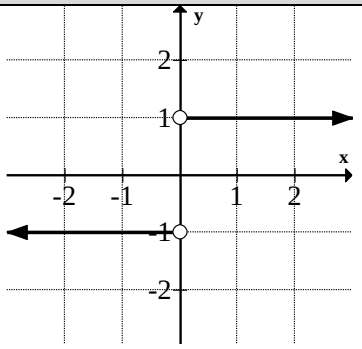
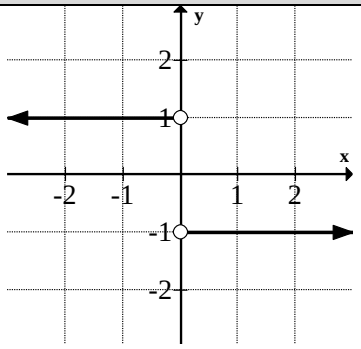
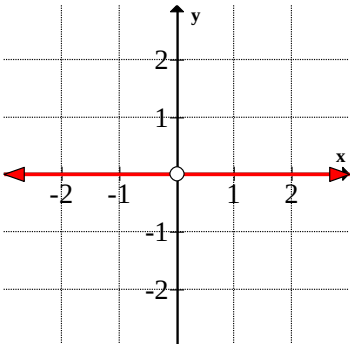
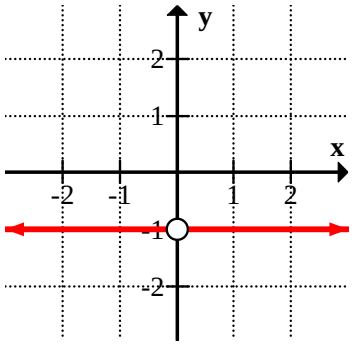
$\text{DNE} + \text{DNE} \neq \text{DNE}$ and $\text{DNE} \cdot \text{DNE} \neq \text{DNE}$

| $f(x) = \dfrac{x}{\lvert x \rvert}$ | $g(x) = -\dfrac{x}{\lvert x \rvert}$ |
|---|---|
|   |   |
| $\lim\limits_{x \to 0} f(x)$ DNE | $\lim\limits_{x \to 0} g(x)$ DNE |
| $h(x) = f(x) + g(x)$ | $k(x) = f(x) \cdot g(x)$ |
|   |   |
| $\lim\limits_{x \to 0}\left[ h(x) \right] = \lim\limits_{x \to 0}\left[ f(x) + g(x) \right]$<br>$0 = \lim\limits_{x \to 0} f(x) + \lim\limits_{x \to 0} g(x)$<br>$0 = \text{DNE} + \text{DNE}$ | $\lim\limits_{x \to 0}\left[ k(x) \right] = \lim\limits_{x \to 0}\left[ f(x) \cdot g(x) \right]$<br>$-1 = \left[ \lim\limits_{x \to 0} f(x) \right] \cdot \left[ \lim\limits_{x \to 0} g(x) \right]$<br>$-1 = \text{DNE} \cdot \text{DNE}$ |