

→ Do in notebook for Monday desk check ←

$f(x) = \frac{1}{x^2+1}$  is a rational fun that has some nice features with respect to derivatives and what they reveal about its graph.

Find the limit of the DQ of  $f(x)$  as  $h \rightarrow 0$ . Then find the slope of the tangent to  $f(x)$  at  $a = -1, 0, 1$ .

(Remember,  $m_{\text{tan at } x=a} = \lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$ )

Finally, graph it (use DESMOS online graphing calculator) to see if your tangent line slopes are reasonable.