

Name ANSWER KEY

_____points

Simplify as far as possible:

$$\begin{aligned}\frac{\frac{1}{x+h} - \frac{1}{x}}{h} &= \frac{\frac{1}{x+h} - \frac{1}{x}}{h} \cdot \frac{x(x+h)}{x(x+h)} = \frac{\frac{1}{x+h} \cdot x \cancel{(x+h)} - \frac{1}{x} \cancel{x} (x+h)}{h(x)(x+h)} \\ &= \frac{x - (x+h)}{h \cdot x \cdot (x+h)} = \frac{-\cancel{h}}{h \cdot x \cdot (x+h)} = \boxed{\frac{-1}{x(x+h)}}$$