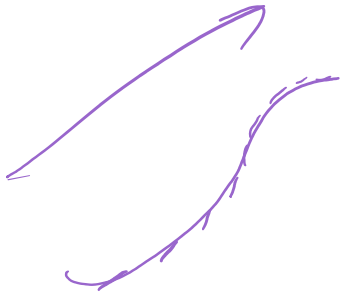
Math 1314 – College Algebra
Section 3.3 Rates of Change and Behavior of Graphs

- Let f be a function defined on the interval $[a,b]$. The average rate of change of f over $[a,b]$ is defined as:

$$\frac{\Delta y}{\Delta x} = \frac{f(b)-f(a)}{b-a}$$



- Does the formula above seem familiar? What can we conclude?

YES! Slope!

Ex: Compute the average rate of change of the function $h(x) = \frac{5}{x+4}$ on $[1,6]$.

ave rate of change: $\frac{h(b)-h(a)}{b-a}$ $a=1$ $b=6$

$$\frac{h(6)-h(1)}{6-1} = \frac{\frac{5}{6+4} - \frac{5}{1+4}}{5}$$

$$= \frac{\frac{5}{10} - \frac{5}{5}}{5} = \frac{\frac{1}{2}-1}{5} = \frac{\left(-\frac{1}{2}\right)}{(5)}$$

$$= \left(-\frac{1}{2}\right)\left(\frac{1}{5}\right) = \boxed{\frac{-1}{10}}$$

frac/frac: ① = ② Rewrite frac in num ③ multiply by reciprocal of frac in denom