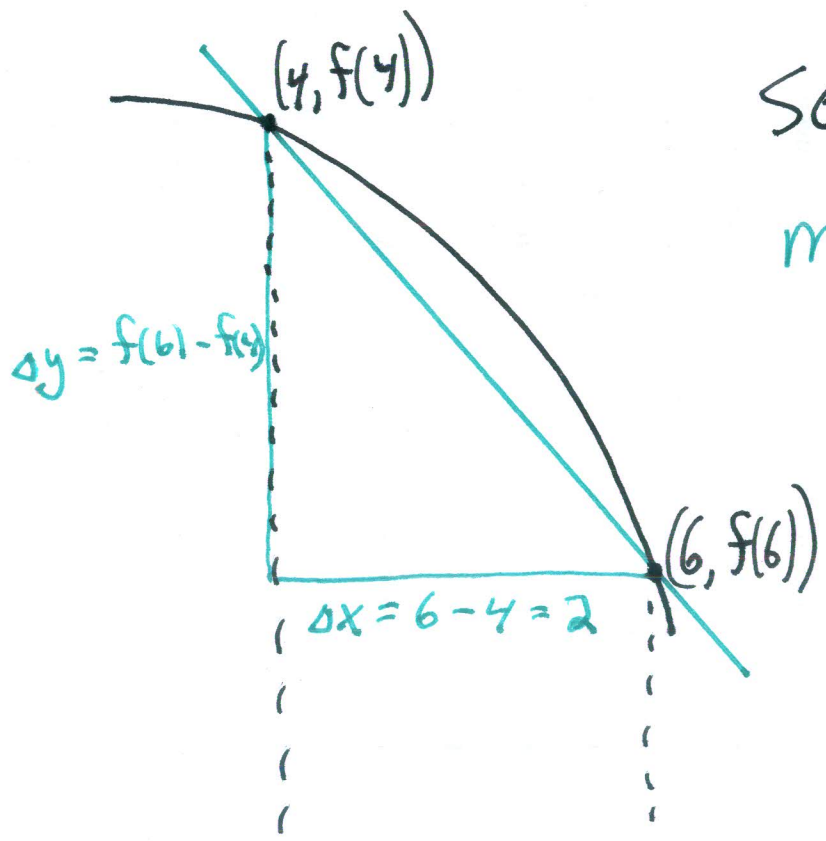


Day 7 is Tuesday, Jan 29, 2013

Yesterday Section 3-4 Rates of change

Secant line connecting points where $x=4$ and $x=6$
coordinates of those points are $(x, y) = (4, f(4))$ and $(6, f(6))$



Secant line slope

$$m = \frac{\Delta y}{\Delta x} = \frac{f(6) - f(4)}{6 - 4} =$$

"average rate of change of f from 4 to 6."

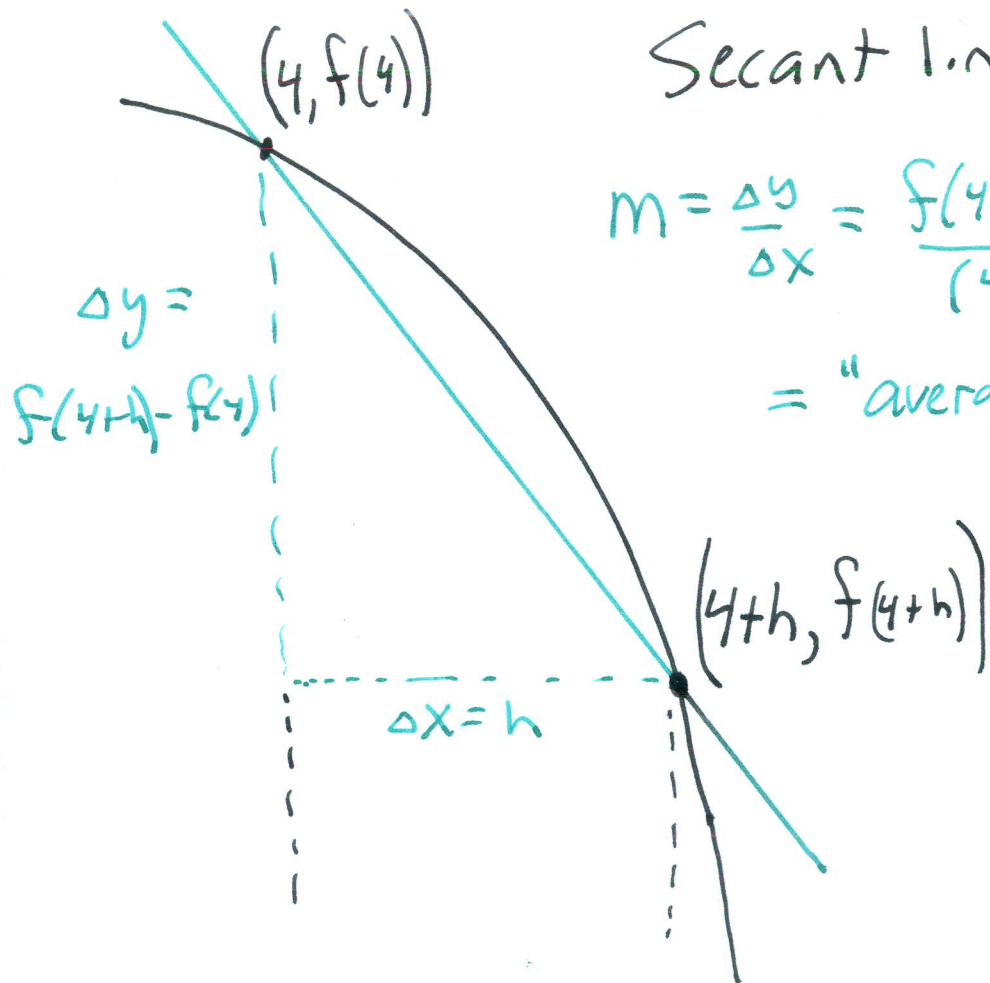
Use 2nd point with x-coordinate $4+h$

Two points are $(x,y) = (4, f(4))$ and $(x,y) = (4+h, f(4+h))$

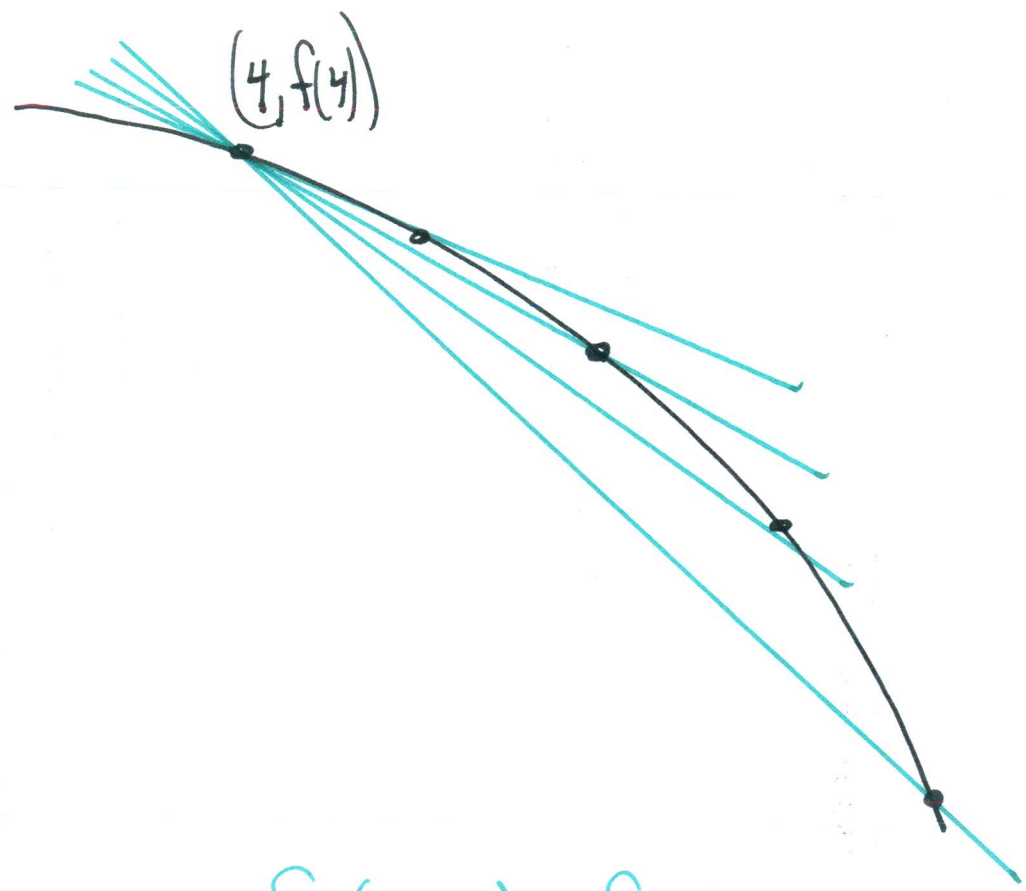
Secant line slope is

$$m = \frac{\Delta y}{\Delta x} = \frac{f(4+h) - f(4)}{(4+h) - 4} = \frac{f(4+h) - f(4)}{h}$$

= "average rate of change of f
from 4 to $4+h$ "



Imagine bring the second point closer to the first point (by making h smaller & smaller)



Slopes $m = \frac{f(4+h) - f(4)}{h}$ are getting less negative
secant line slope

