

(1)

Tuesday September 11, 2012

Continuing discussion of Rates of Change (Section 3-4)

Question where did this formula come from?

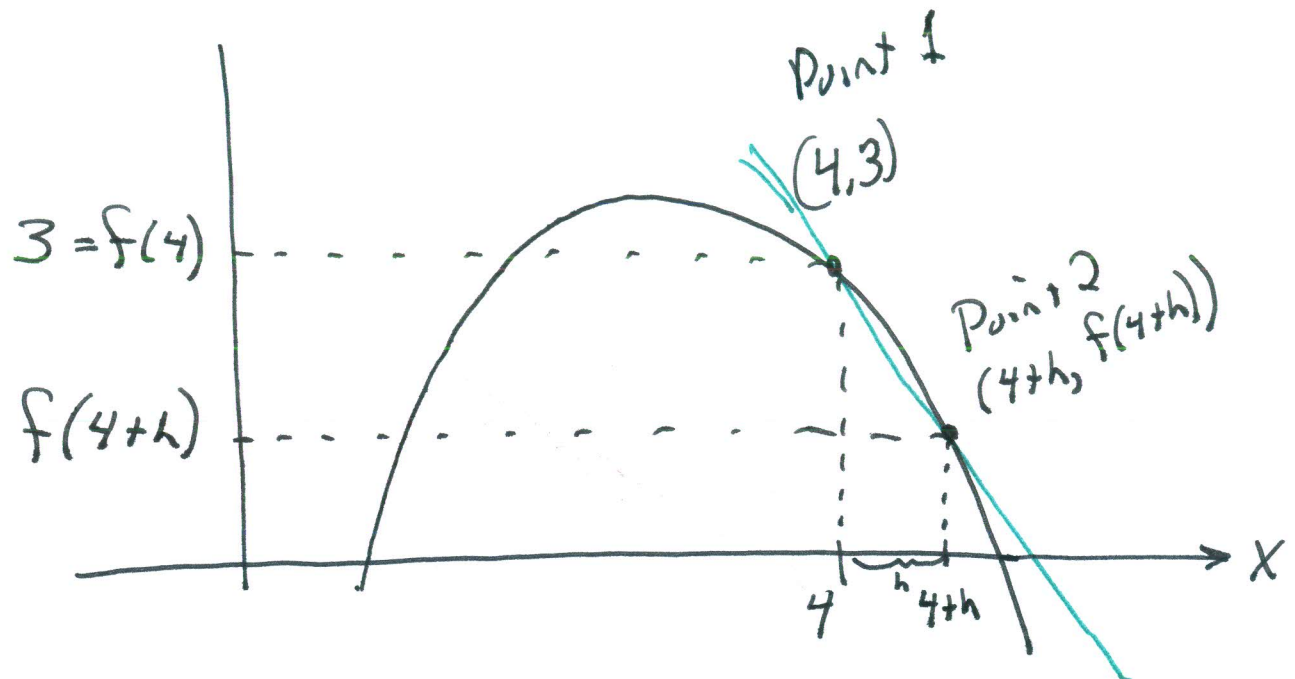
$$m = \lim_{h \rightarrow 0} \frac{f(4+h) - f(4)}{h}$$

Why is that the formula for the slope of the tangent line?

Consider ~~the~~ two nearby points on the graph of f .

Point 1 is the point $(x, y) = (4, f(4)) = (4, 3)$

Point 2 is the point $(x, y) = (4+h, f(4+h))$



this line has slope

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

these cancel

Secant line slope $m = \frac{f(4+h) - f(4)}{h} = -h - 2$

↑
from yesterday

Now imagine pulling the Point 2 in closer & closer to Point 1

