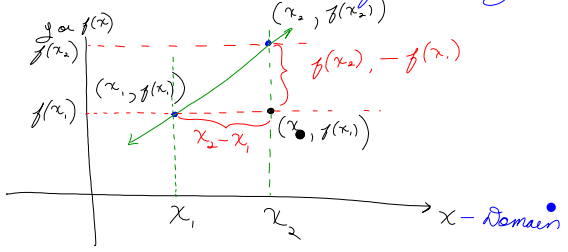
February 13, 2017

Average Rate of Change



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Rate of Change

① Slope = $m = \dfrac{f(x_2) - f(x_1)}{x_2 - x_1}$

② $m = \dfrac{f(b) - f(a)}{b - a}$

③ Diff Quotient $= \dfrac{f(x+h) - f(x)}{h}$

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#10) $f(x) = \underset{m}{5}\underset{x}{x} + \underset{b}{5}$ $\quad m = \frac{5}{1}$

D.Q. $\dfrac{f(x+h) - f(x)}{h}$

① $f(x) = 5x + 5$

② $f(x+h)$

$= 5(x+h) + 5$

$\dfrac{5(x+h)+5 - (5x+5)}{h}$

$\dfrac{5x + 5h + 5 - 5x - 5}{h}$

$\dfrac{5h}{h} = 5$

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#11) $f(x) = x^2 + 7x - 4$

$\dfrac{(x+h)^2 + 7(x+h) - 4 - (x^2 + 7x - 4)}{h}$

$\dfrac{x^2 + 2xh + h^2 + 7x + 7h - 4 - x^2 - 7x + 4}{h}$

$\dfrac{2xh + h^2 + 7h}{h}$

$\dfrac{h(2x + h + 7)}{h}$

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$f(x) = 2x$

$f(x+h) = 2(x+h)$

$f(5) = 2(5) = 10$

$f(a-c) = 2(a-c)$

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$g(x) = 2x^2 - 3x$

$\dfrac{2(x+h)^2 - 3(x+h) - (2x^2 - 3x)}{h}$

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