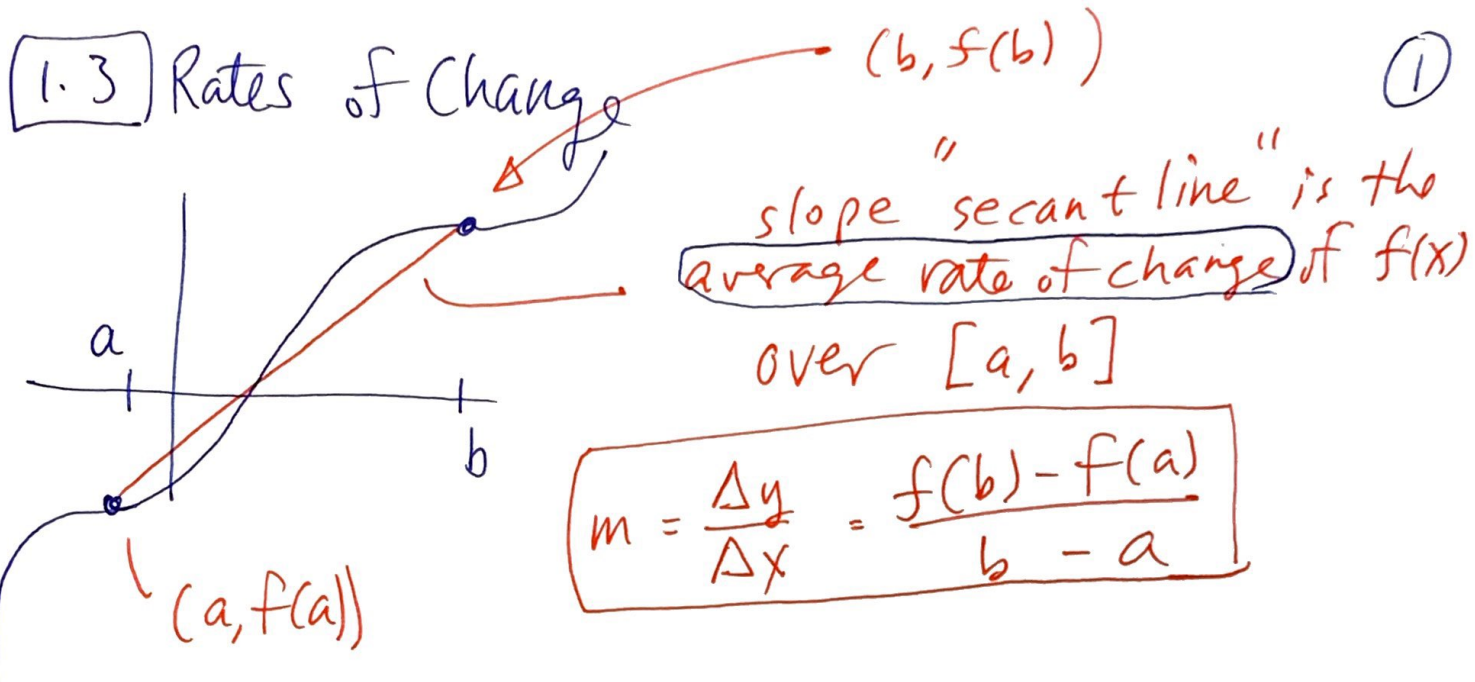
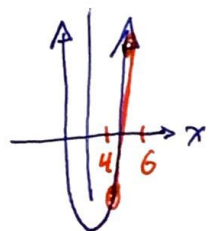




EX Find ave rate of change of $g(x) = 2x^2 - 9$
 $x \in [4, 6]$



$$m = \frac{g(6) - g(4)}{6 - 4}$$

$$m = \frac{[2(6)^2 - 9] - [2(4)^2 - 9]}{2}$$

$$m = \frac{63 - 23}{2} \rightarrow \boxed{m = 20}$$

$$m = \frac{40}{2}$$

EX Use the same $g(x)$ but use $x \in [4, b]$

$$m = \frac{g(b) - g(4)}{b - 4}$$

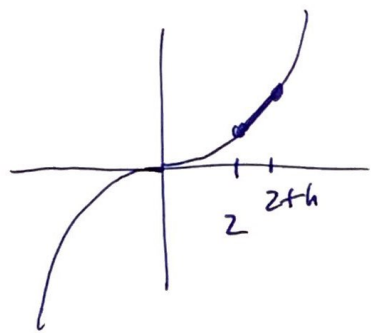
$$= \frac{(2b^2 - 9) - (2(4)^2 - 9)}{b - 4}$$

$$m = 2 \frac{b^2 - 4^2}{b - 4}$$

$$m = 2 \frac{(b+2)(b-2)}{b-4}$$

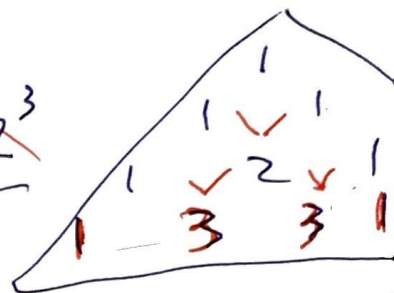
parameter

(2)
[EX] Ave rate of change of $r(t) = 4t^3$ from $[2, 2+h]$



$$m = \frac{4(2+h)^3 - 4(2)^3}{(2+h) - 2}$$

$$= \frac{4[2^3 + 3 \cdot 2^2 h + 3 \cdot 2 h^2 + h^3] - 2^3}{h}$$



$$= \frac{4}{h} (12h + 6h^2 + h^3)$$

$$= \boxed{48 + 24h + 4h^2}$$

ex: @ $h = 0.1$

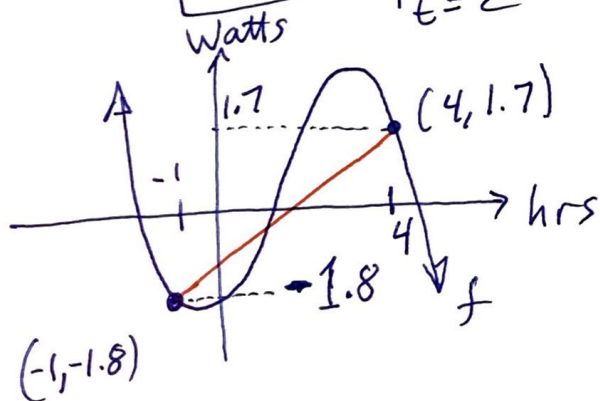
$$\bar{g} = 48 + 24(0.1) + 4(0.1)^2$$

$$= 48 + 2.4 + 0.04$$

$$= \boxed{50.44}$$

{Calc I : $\lim_{h \rightarrow 0} \left. \frac{dg}{dt} \right|_{t=2} = 48$ }

[EX]



$\bar{f}$ over $[-1, 4]$

$$= \frac{f(4) - f(-1)}{4 - (-1)}$$

$$= \frac{1.7 - (-1.8)}{4 + 1}$$

$$= \frac{3.5}{5}$$

$$= \boxed{0.7} \text{ Watts/hr}$$