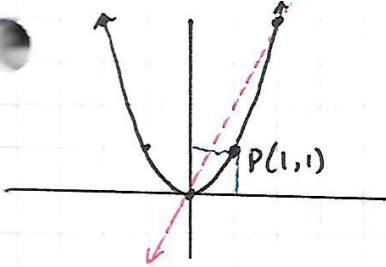


Intro to Calculus

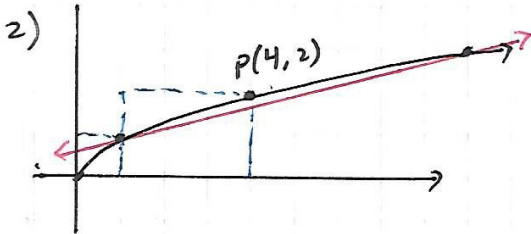
1) $f(x) = x^2$ $P(1, 1)$



a) $m|_{x=1} \approx \frac{f(2) - f(0)}{2 - 0} = \frac{4}{2} = 2$

b) choose two points really close to $(1, 1)$ in order to improve accuracy

c) Area = $f(1) \cdot 1 = 1$



a) $m|_{x=4} \approx \frac{f(9) - f(1)}{9 - 1} = \frac{1}{4}$

b) choose two points really close to $(4, 2)$ in order to improve accuracy

c) Area $\approx f(1) \cdot 1 + f(4) \cdot 3$
 $= 1 + 6 = 7$ overestimate

3) a) $m|_{x=0} \approx \frac{f(8) - f(3)}{8 - 3}$
 $= \frac{1 - 2}{5} = -\frac{1}{5}$

b) Area $\approx f(-4)(3) + f(-1)(1) + f(0)(3) + f(3)(5) + f(8)(3)$
 $= (5)(3) + (2)(1) + (4)(3) + (2)(5) + (1)(3)$
 $= 42$