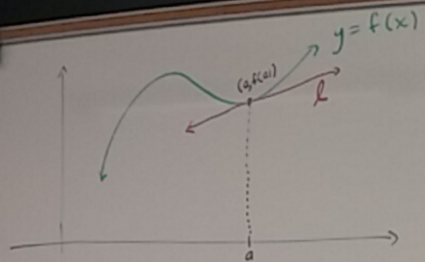
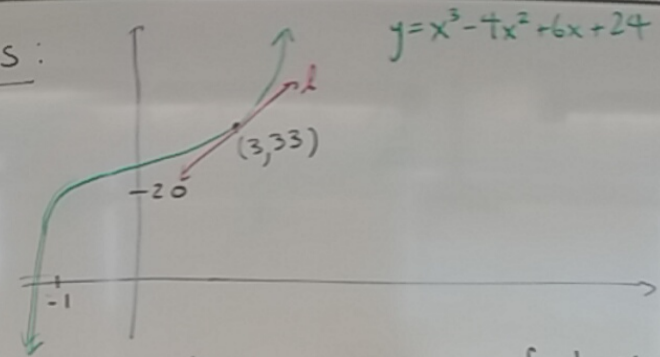


Given any curve, the instantaneous rate of change at a point $\big[\,(a, f(a))\,\big]$ is given by computing the derivative at that point.

$$f'(a)$$

It turns out this is the slope of the tangent line, ℓ, in the picture above.

Examples:



The instantaneous rate of change at $(3,33)$ is given by $f'(3)$.

And $f'(x) = 3x^2 - 8x + 6$

So $f'(3) = 3(3)^2 - 8(3) + 6$

$\boxed{= 9}$

So, the slope of line ℓ is $\boxed{9.}$

Wha

$f(x) = 3x^{12} + 4x$

$f'(x) = 36x^{11} + 12x$

$f''(x) = 396x^{10} +$

$f^{(3)}(x) = 3960x^{9}$