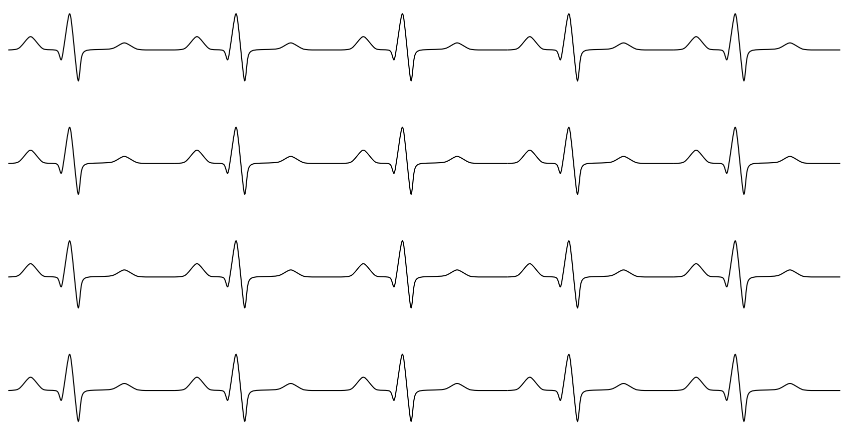
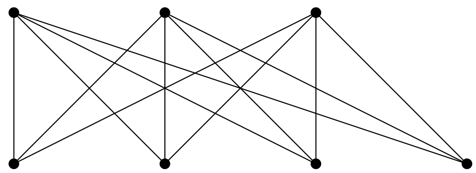


Figure 1: Sampling with a time step similar to (or longer than) characteristic time may obscure the important features of a biological signal.



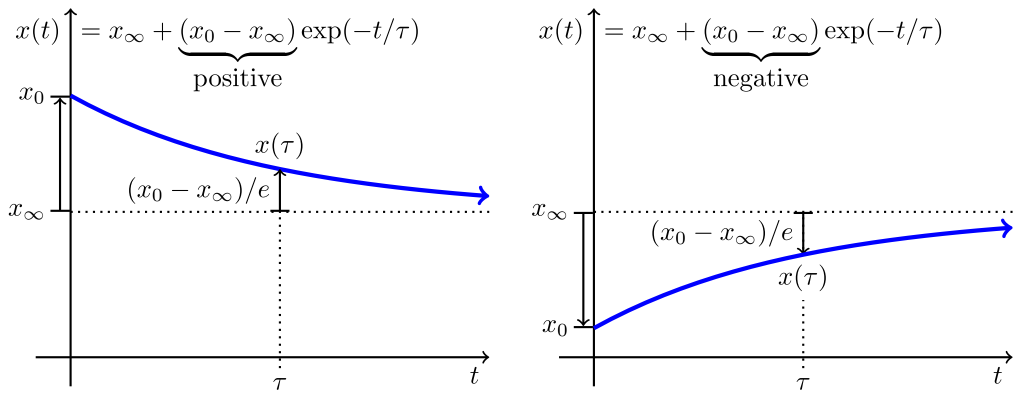
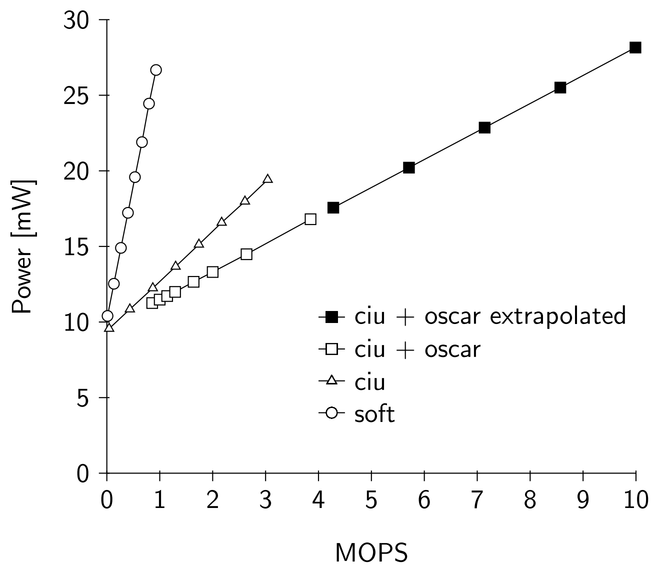
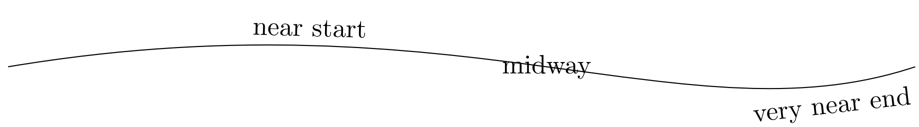


Figure 2: Exponential relaxation.



$$\alpha < 0$$
$$t_2 > t_1$$
$$x(t_2) < x(t_1)$$
$$x'(t_2) < x'(t_1)$$



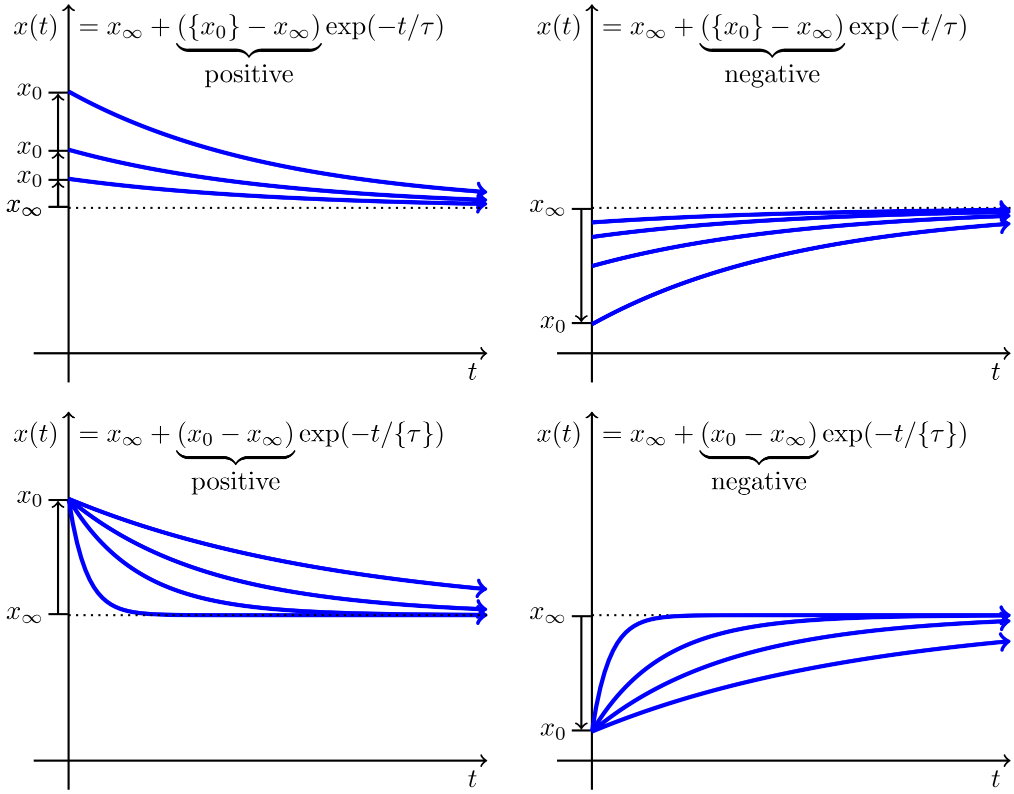


Figure 3: Exponential relaxation.

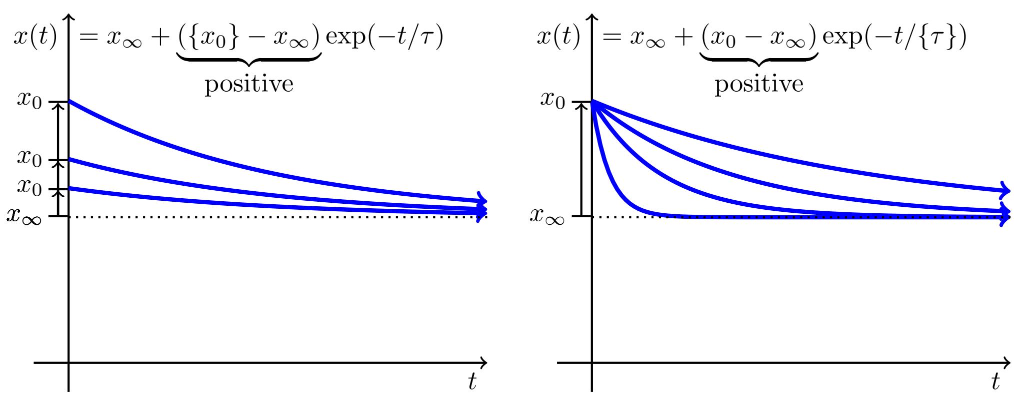


Figure 4: Exponential relaxation.

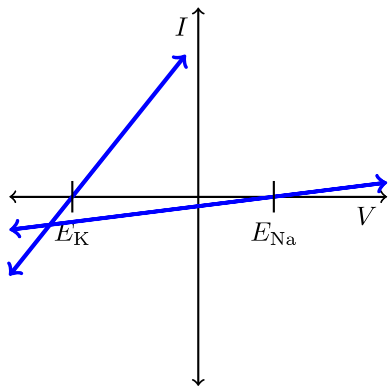


Figure 5: Current-voltage relation.

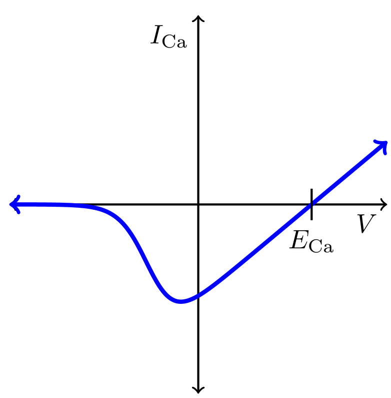


Figure 6: Current-voltage relation.

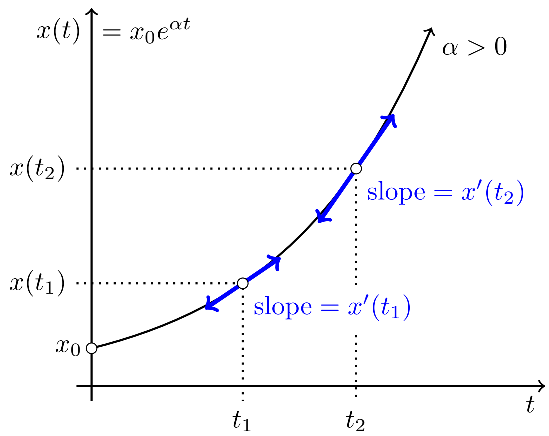


Figure 7: Exponential growth slopes.

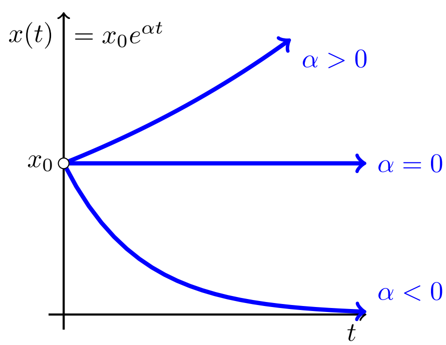
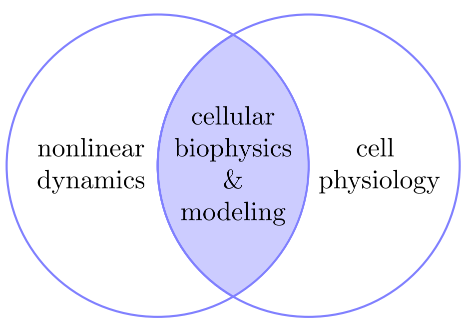


Figure 8: Caption.



Definition of circles

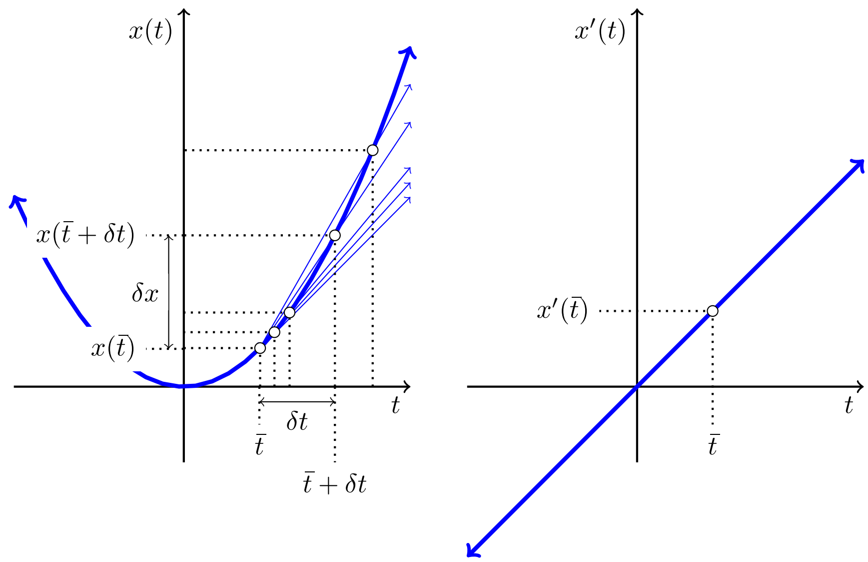
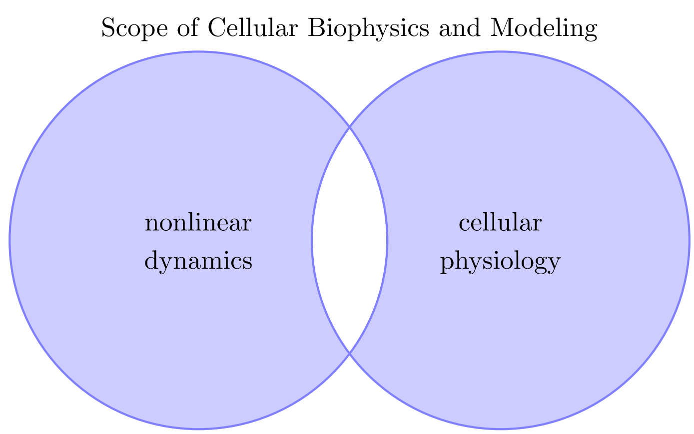


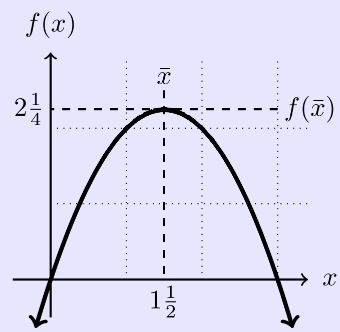
Figure 9: Definition of a derivative



Analytical / Pencil & Paper

$$
\begin{aligned}
f(x) &= 3x - x^2 \\
f'(x) &= 3 - 2x \\
\\
f'(\bar{x}) &= 3 - 2\bar{x} = 0 \\
\bar{x} &= \frac{3}{2} = 1\frac{1}{2}
\end{aligned}
$$

$$f\left(\bar{x}\right) = 3\left(\frac{3}{2}\right) - \left(\frac{3}{2}\right)^2 = \frac{9}{4} = 2\frac{1}{4}$$

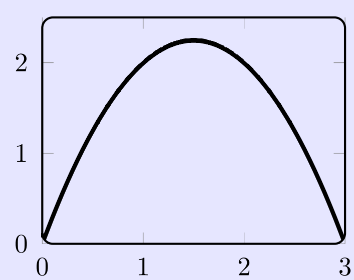


Numerical / Computer

```
>> x = 0:0.1:3;
>> f = 3*x-x.^2;
>> max(f)

   ans = 2.2500

>> plot(x,f)
```



A fancy title

To calculate the horizontal position the kinematic differential equations are needed:

$$\dot{n} = u \cos\psi - v \sin\psi \tag{1}$$
$$\dot{e} = u \sin\psi + v \cos\psi \tag{2}$$

♣

For small angles the following approximation can be used:

$$\dot{n} = u - v\delta_\psi \tag{3}$$
$$\dot{e} = u\delta_\psi + v \tag{4}$$

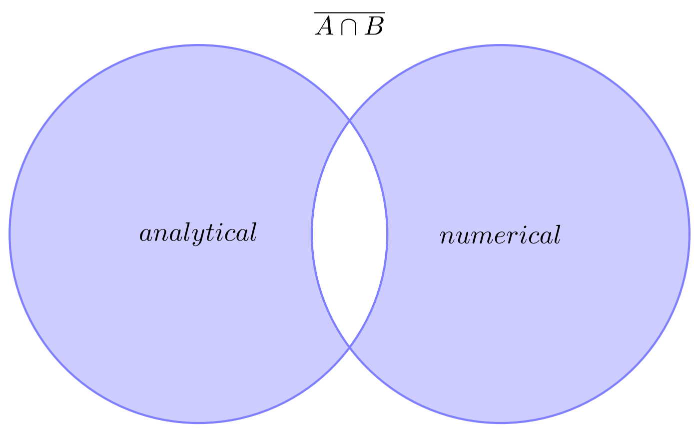
Fermat's Last Theorem

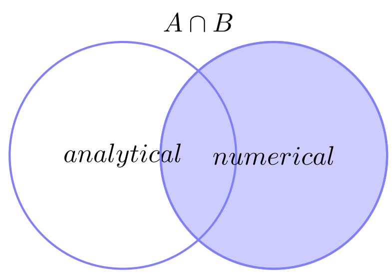
Fermat's Last Theorem states that

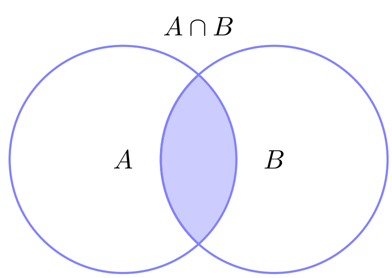
$$x^n + y^n = z^n$$

has no non-zero integer solutions for x, y and z when $n > 2$.

Figure 10: kldfjadls;fjadl;sfj.


$\overline{A \cap B}$
$analytical$
$numerical$


$A \cap B$
$analytical$
$numerical$


$A \cap B$
A
B

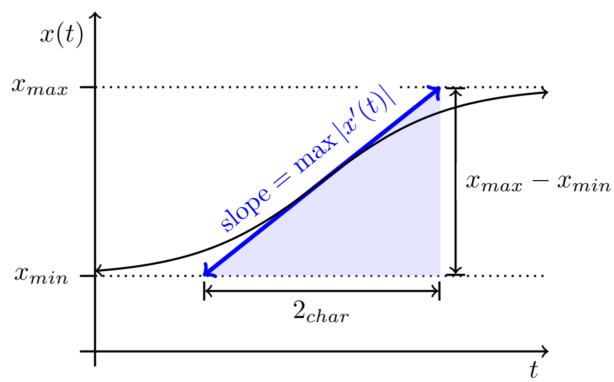


Figure 11: Characteristic time for changes in a bounded function.