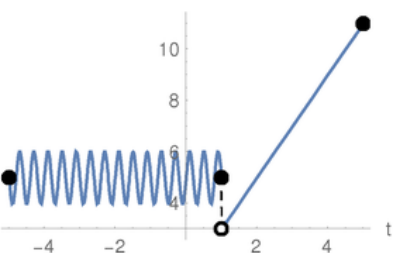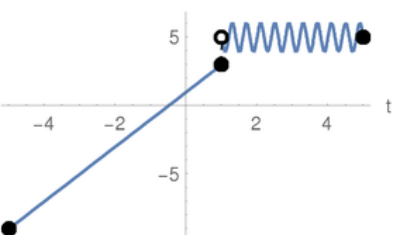# Piecewise Functions

 To define piecewise means that the function values and graphs
are defined over a particular and generally limited
section of the t-axis

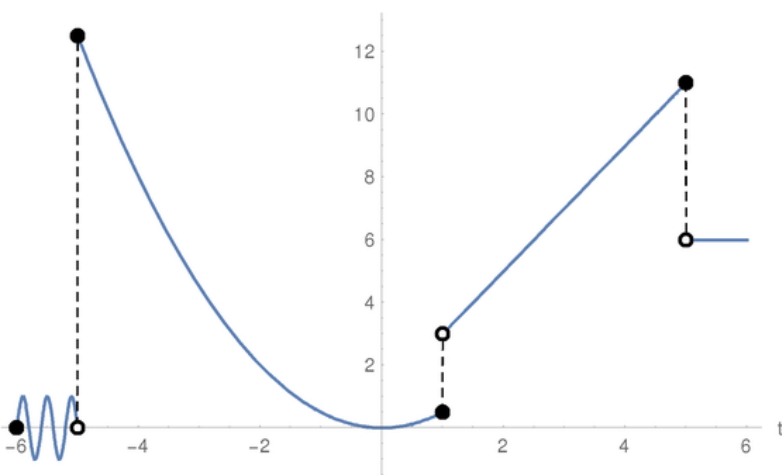$$\begin{cases} \sin(5\pi t) + 5 & -5 \le t \le 1 \\ 2t + 1 & 1 < t \le 5 \end{cases}$$



where two functions are placed together, and for that matter
could be pieced differently i.e. swapped:

$$\begin{cases} 2t + 1 & -5 \le t \le 1 \\ \sin(5\pi t) + 5 & 1 < t \le 5 \end{cases}$$



More and more complicated functions could be placed together:

$$\begin{cases} \sin(5\pi t) & -6 \le t < -5 \\ \dfrac{t^2}{2} & -5 \le t \le 1 \\ 2t + 1 & 1 < t \le 5 \\ 6 & t > 5 \end{cases}$$



Solid disk corresponds to inclusion of the point or any of $\le$ $\ge$ = operators

●

Hollow disk corresponds to the exclusion or any of the $<$ $>$ operators

○