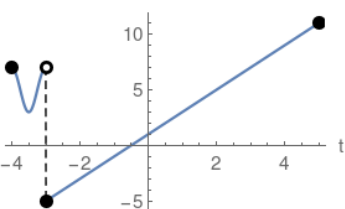


# Piecewise Functions

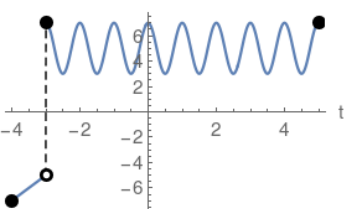
To define piecewise means that the function values and graphs are defined over a particular and generally limited section of the t-axis

$$\begin{cases} 2 \cos(2 \pi t) + 5 & -4 \leq t < -3 \\ 2t + 1 & -3 \leq t \leq 5 \end{cases}$$



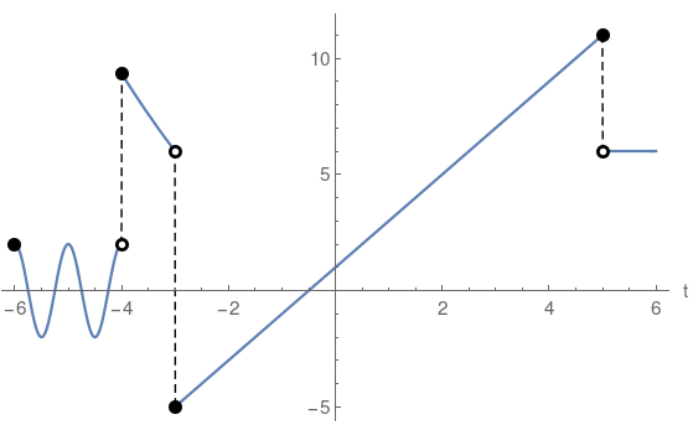
where two functions are glued together, and for that matter could be pieced differently i.e. swapped:

$$\begin{cases} 2t + 1 & -4 \leq t < -3 \\ 2 \cos(2 \pi t) + 5 & -3 \leq t \leq 5 \end{cases}$$



More and more complicated functions could be glued together:

$$\begin{cases} 2 \cos(2 \pi t) & -6 \leq t < -4 \\ \frac{t^2}{3} - t & -4 \leq t < -3 \\ 2t + 1 & -3 \leq t \leq 5 \\ 6 & t > 5 \end{cases}$$



**Solid disk** corresponds to inclusion of the point or any of  $\leq \geq =$  operators



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

