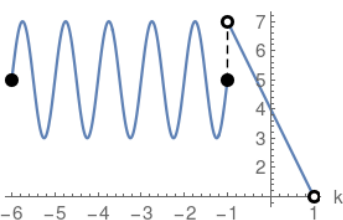


# Piecewise Functions

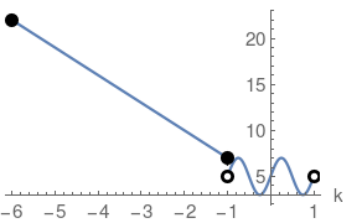
To define piecewise means that the function values and graphs are defined over a particular and generally limited section of the k-axis

$$\begin{cases} 2 \sin(2 \pi k) + 5 & -6 \leq k \leq -1 \\ 4 - 3k & -1 < k < 1 \end{cases}$$



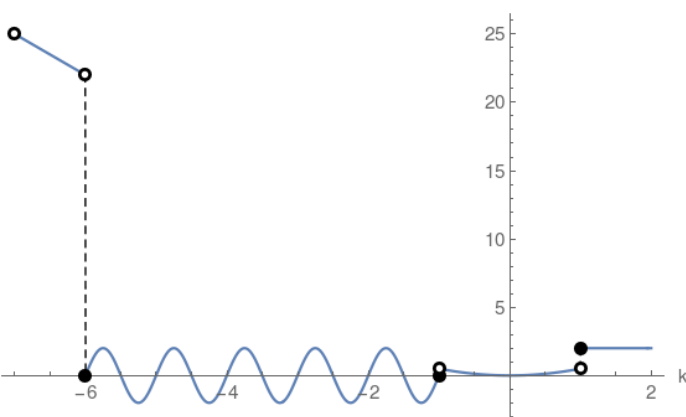
where two functions are stitched together, and for that matter could be pieced differently i.e. swapped:

$$\begin{cases} 4 - 3k & -6 \leq k \leq -1 \\ 2 \sin(2 \pi k) + 5 & -1 < k < 1 \end{cases}$$



More and more complicated functions could be stitched together:

$$\begin{cases} 4 - 3k & -7 < k < -6 \\ 2 \sin(2 \pi k) & -6 \leq k \leq -1 \\ \frac{k^2}{2} & -1 < k < 1 \\ 2 & k \geq 1 \end{cases}$$



**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

