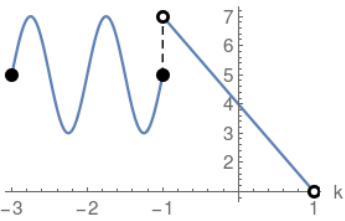
Piecewise Functions

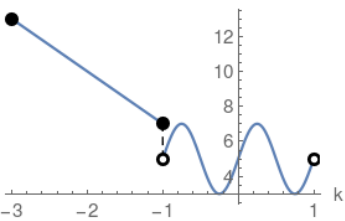
To define piecewise means that the function values and graphs are defined over a particular and generally limited section of the k-axis

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



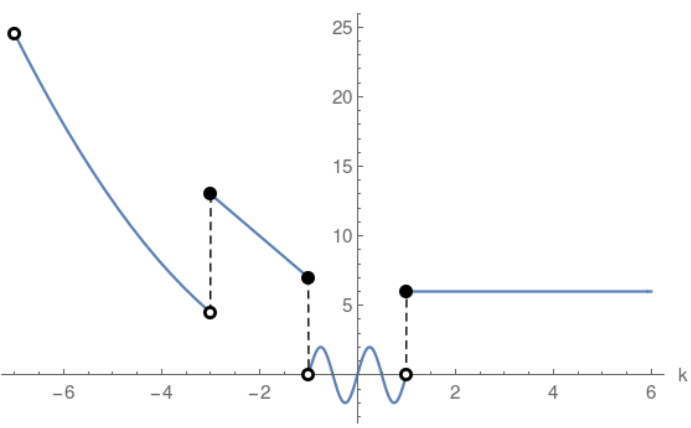
where two functions are glued together, and for that matter could be pieced differently i.e. swapped:

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



More and more complicated functions could be glued together:

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



Solid disk corresponds to inclusion of the point or any of $\leqslant$ $\geqslant$ $=$ operators

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

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