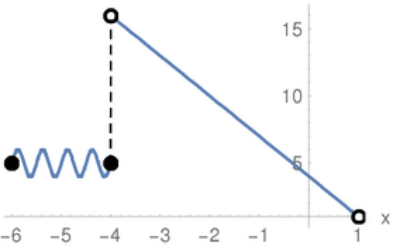
Piecewise Functions

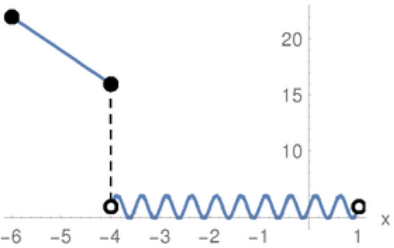
To define piecewise means that the function values and graphs are defined over a particular and generally limited section of the x-axis

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



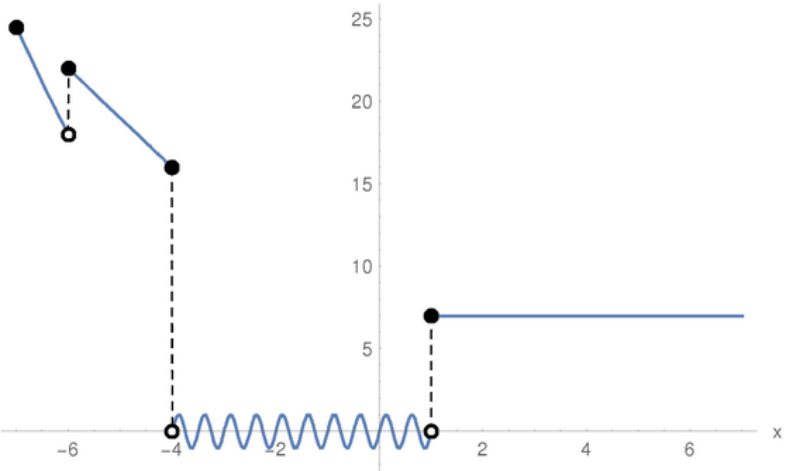
where two functions are glued together, and for that matter could be pieced differently i.e. swapped:

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



More and more complicated functions could be glued together:

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



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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