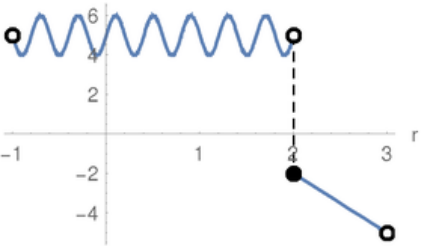
Piecewise Functions

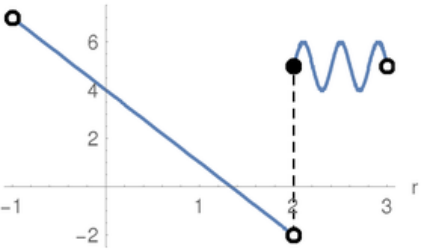
To define piecewise means that the function values and graphs are defined over a particular and generally limited section of the r-axis

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



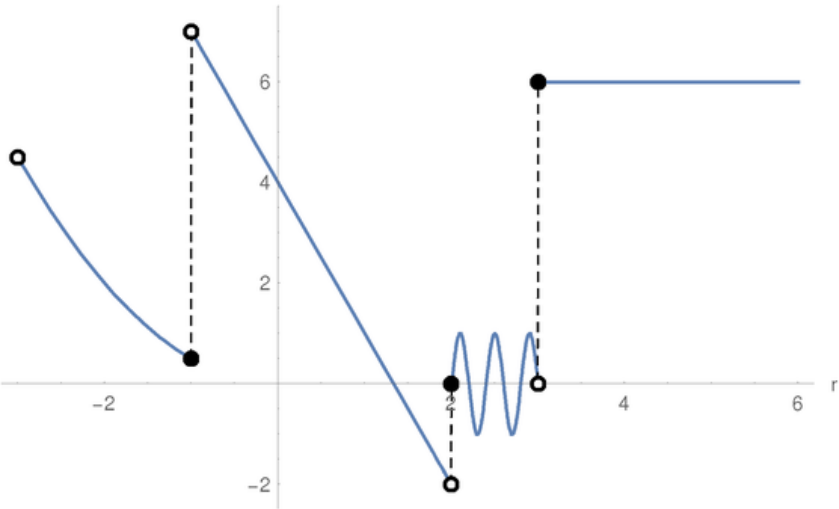
where two functions are glued together, and for that matter could be pieced differently i.e. swapped:

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



More and more complicated functions could be glued together:

$$\begin{cases} \frac{r^2}{2} & -3 < r \le -1 \\ 4 - 3r & -1 < r < 2 \\ \sin(5\pi r) & 2 \le r < 3 \\ 6 & r \ge 3 \end{cases}$$



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

●

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

○