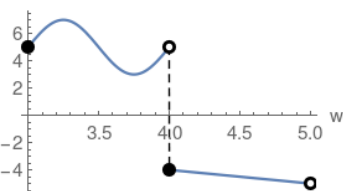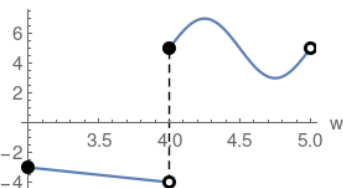# Piecewise Functions

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

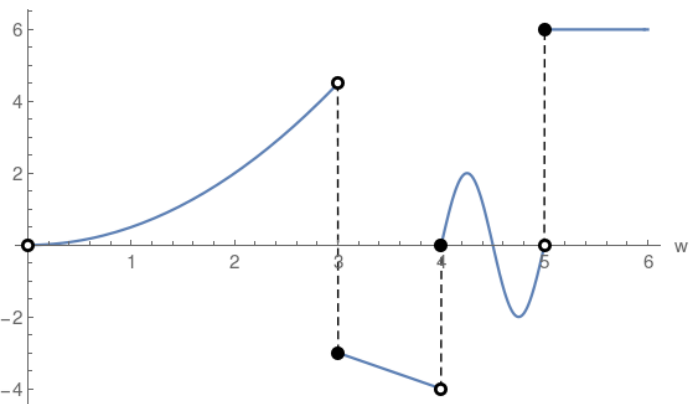$$\begin{cases} 2\sin(2\pi w) + 5 & 3 \le w < 4 \\ -w & 4 \le w < 5 \end{cases}$$

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

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

More and more complicated functions could be placed together:

$$\begin{cases} \dfrac{w^2}{2} & 0 < w < 3 \\ -w & 3 \le w < 4 \\ 2\sin(2\pi w) & 4 \le w < 5 \\ 6 & w \ge 5 \end{cases}$$

Solid disk corresponds to inclusion of the point or any of $\le$ $\ge$ $=$ operators
●

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