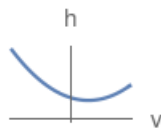# Plotting the Parabola

How to plot : $h(v) = a\, v^2 + b\, v + c$
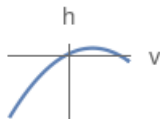
Step 1.
Examine the sign for the leading coefficent

If a $>$ 0 then the valley shape:
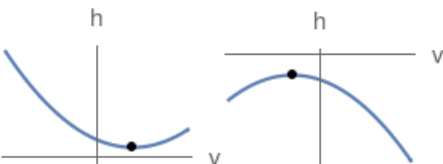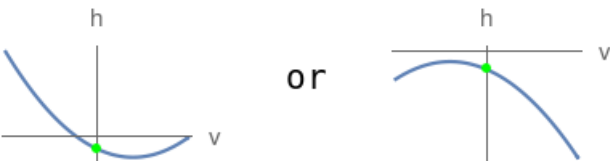

If a $<$ 0 then the hill shape:

Step 2.
Compute the vertex: $\left(-\dfrac{b}{2a}, h\left(-\dfrac{b}{2a}\right)\right)$
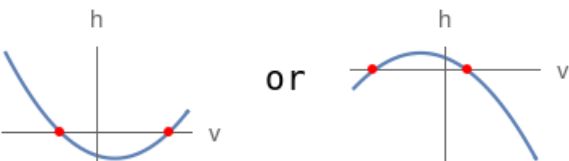

Step 3.
Compute the h-intercept by setting v=0, $0^2\, a + 0\, b + c = c$

or

Step 4.
Compute the v-intercepts by solving: $a\, v^2 + b\, v + c = 0$

or

Step 5.
Sketch a rough plot, try to connect vertex to intercepts:

or