Plotting the Parabola

How to plot : $y(j) = a\,j^2 + b\,j + c$

Step 1.
Examine the sign for the leading coefficent

If $a > 0$ then the valley shape:
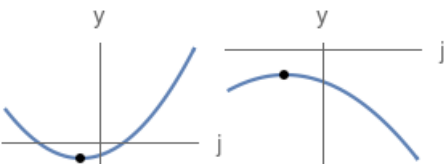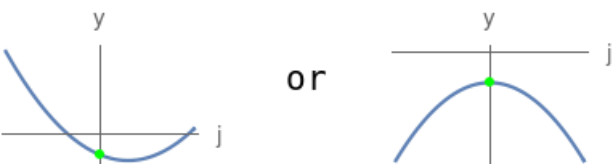

If $a < 0$ then the hill shape:

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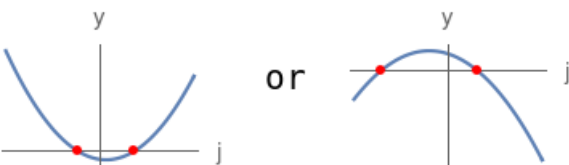

Step 3.
Compute the y–intercept by setting $j=0$, $0^2\,a + 0\,b + c = c$

 or

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

 or

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

 or