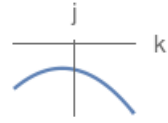
Plotting the Parabola

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

Step 1.

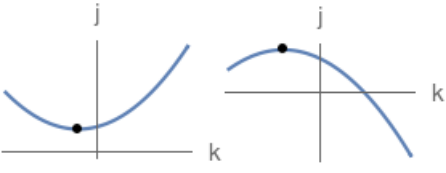
Examine the sign for the leading coefficent

If $a > 0$ then the valley shape: 

If $a < 0$ then the hill shape: 

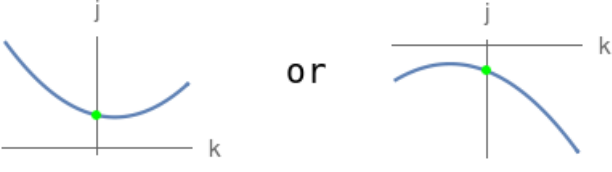
Step 2.

Compute the vertex: $(-\frac{b}{2a}, j(-\frac{b}{2a}))$



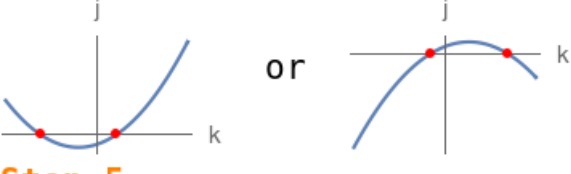
Step 3.

Compute the j-intercept by setting $k=0$, $0^2\,a + 0\,b + c = c$



Step 4.

Compute the k-intercepts by solving: $a\,k^2 + b\,k + c = 0$



Step 5.

Sketch a rough plot, try to connect vertex to intercepts: