

Plotting the Parabola

How to plot : $f(u) = a u^2 + b u + c$

Step 1.

Examine the sign for the leading coefficient

If $a > 0$ then the valley shape:

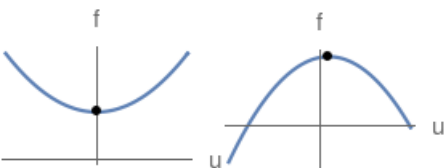


If $a < 0$ then the hill shape:



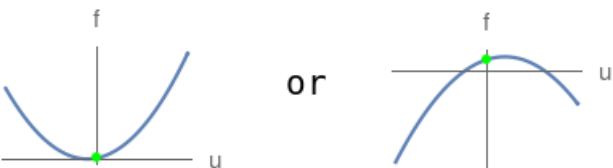
Step 2.

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



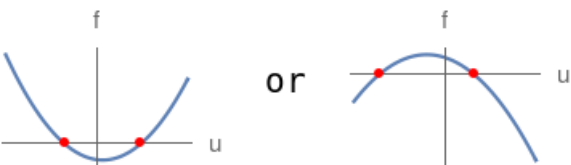
Step 3.

Compute the f-intercept by setting $u=0$, $0^2 a + 0 b + c = c$



Step 4.

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



Step 5.

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

