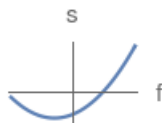# Plotting the Parabola

How to plot : $s(f) = a\,f^2 + b\,f + c$
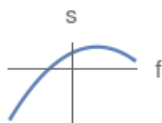
Step 1.

Examine the sign for the leading coefficent

If $a > 0$ then the valley shape:
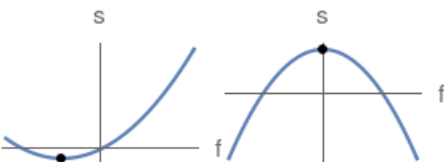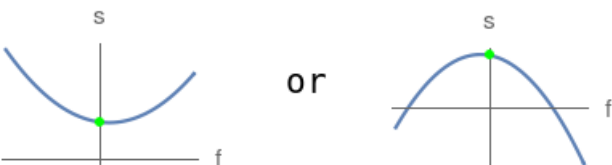
If $a < 0$ then the hill shape:

Step 2.

Compute the vertex: $\left(-\dfrac{b}{2\,a}, s\left(-\dfrac{b}{2\,a}\right)\right)$
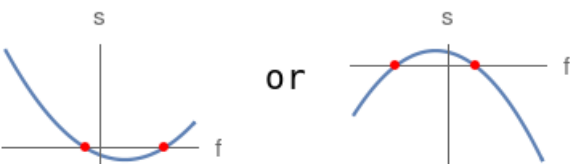
Step 3.

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

or

Step 4.

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

or

Step 5.

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

or