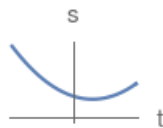# Plotting the Parabola

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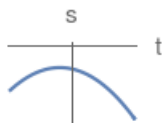
Step 1.
Examine the sign for the leading coefficent

If $a > 0$ then the valley shape:
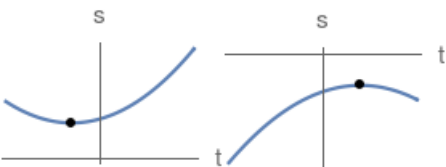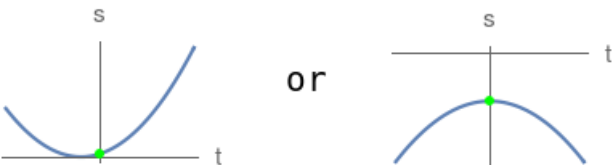

If $a < 0$ then the hill shape:

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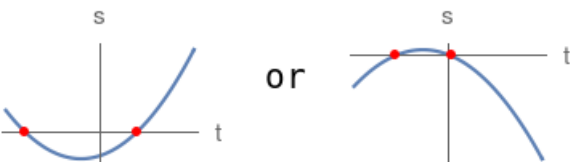

Step 3.
Compute the s-intercept by setting $t=0$, $0^2 a + 0\,b + c = c$

           or

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

           or

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

           or