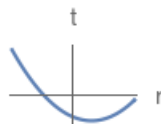# Plotting the Parabola

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

Step 1.
Examine the sign for the leading coefficent

If $a > 0$ then the valley shape:
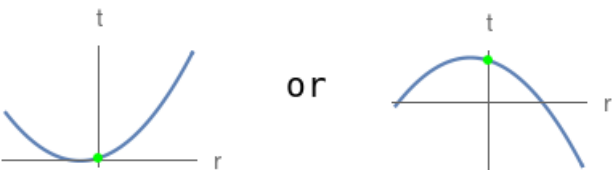

If $a < 0$ then the hill shape:

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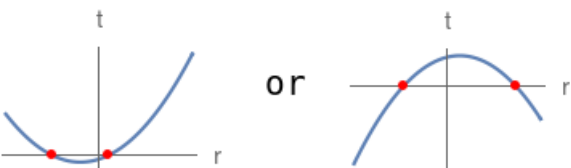

Step 3.
Compute the t-intercept by setting $r=0$, $0^2 a + 0\, b + c = c$

 or

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

 or

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

 or