

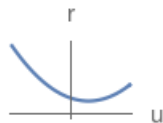
# Plotting the Parabola

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

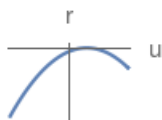
## Step 1.

Examine the sign for the leading coefficient

If  $a > 0$  then the valley shape:

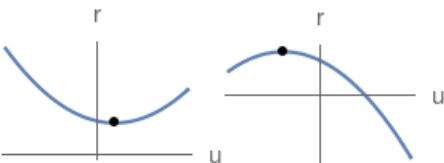


If  $a < 0$  then the hill shape:



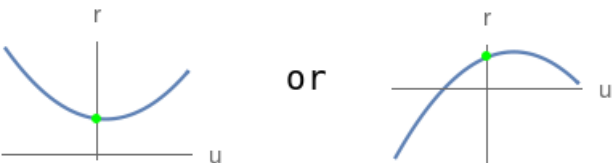
## Step 2.

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



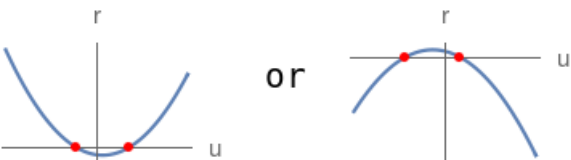
## Step 3.

Compute the r-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:

