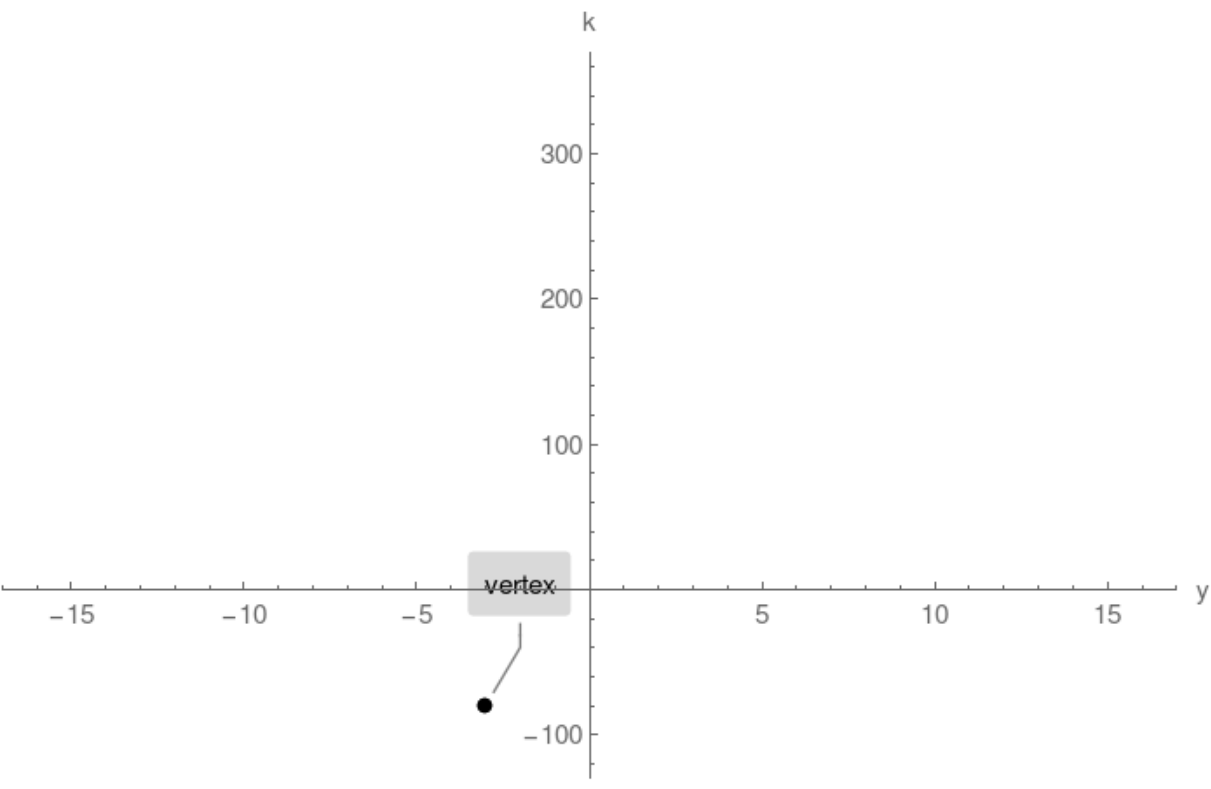
Example 1. 2 horizontal intercepts found

Plot $k(y) = y^2 + 6y - 71$

Step 1.

Compute vertex and plot single point:

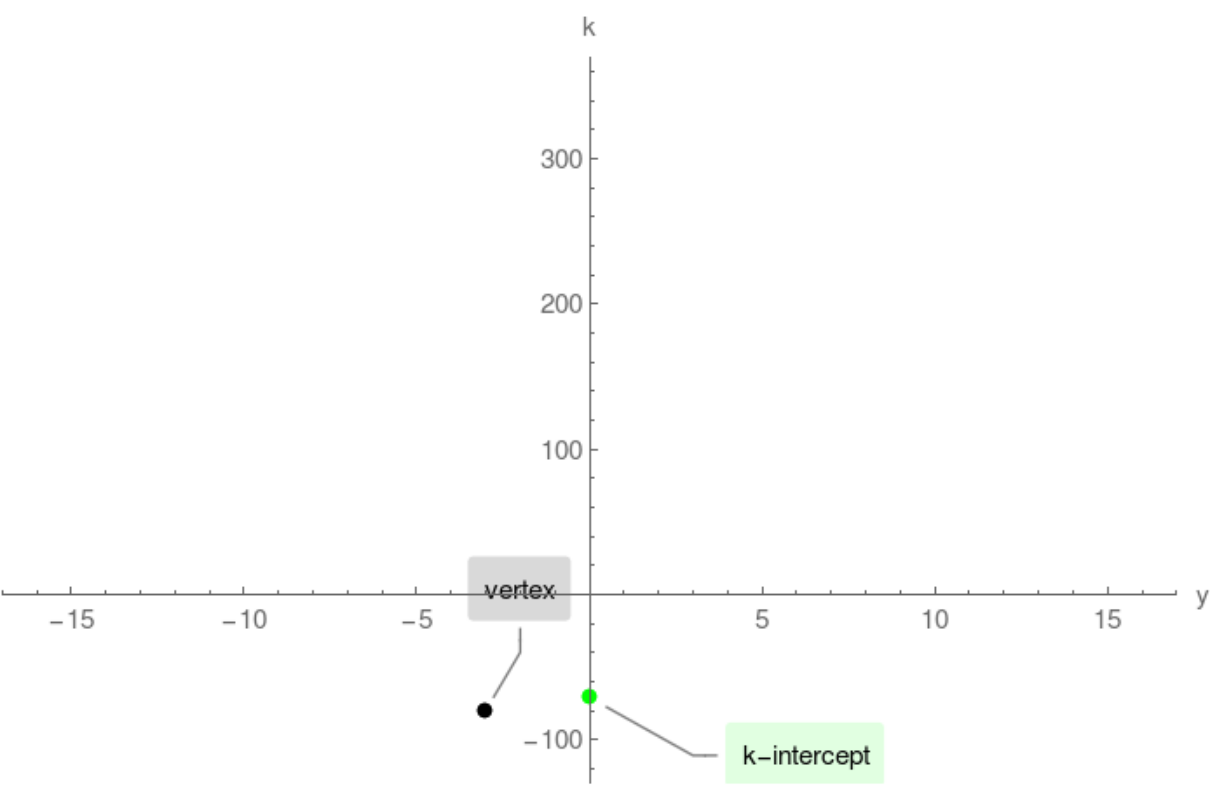
vertex $= (-3, -80)$



Step 2.

Compute k-intercept and plot single point:

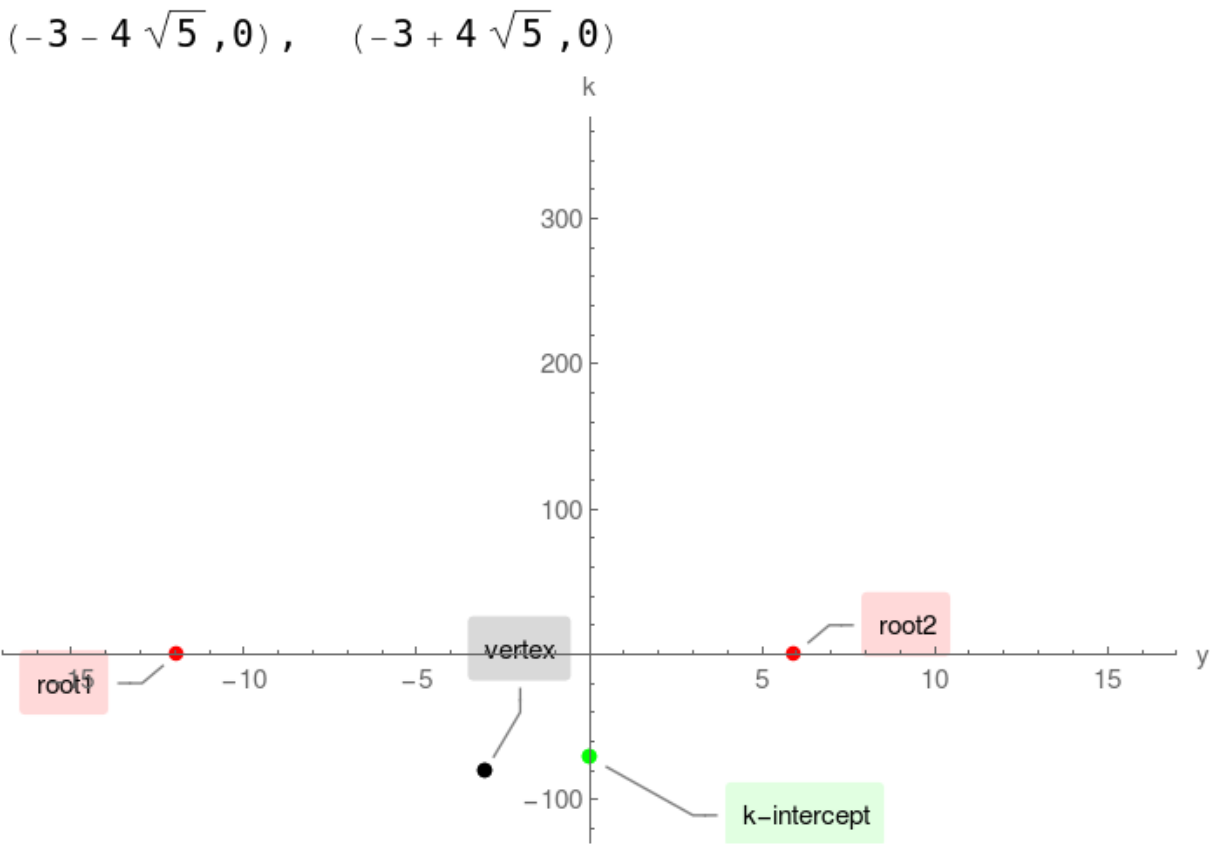
k-intercept $= (0, -71)$



Step 3.

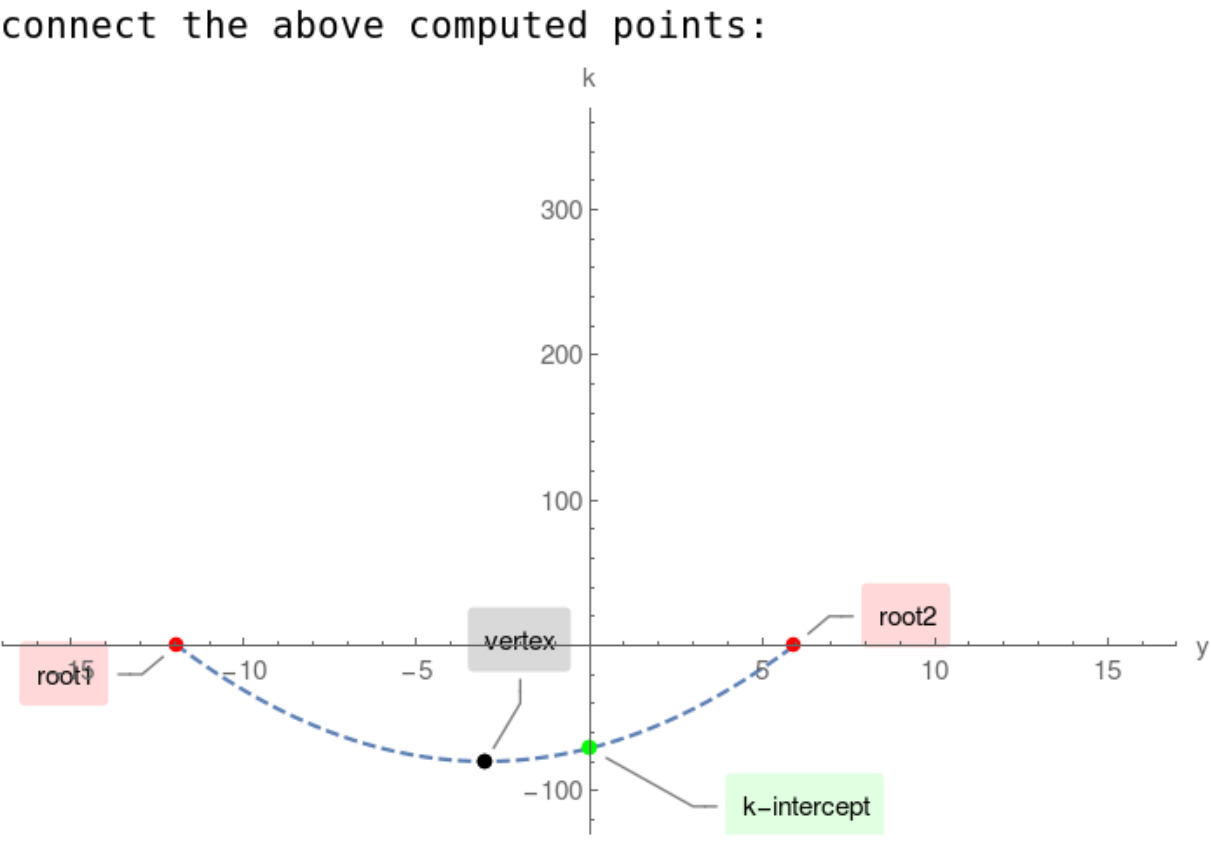
Compute y-intercepts by solving $y^2 + 6y - 71 = 0$:

$(-3 - 4\sqrt{5}, 0)$, $(-3 + 4\sqrt{5}, 0)$



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts