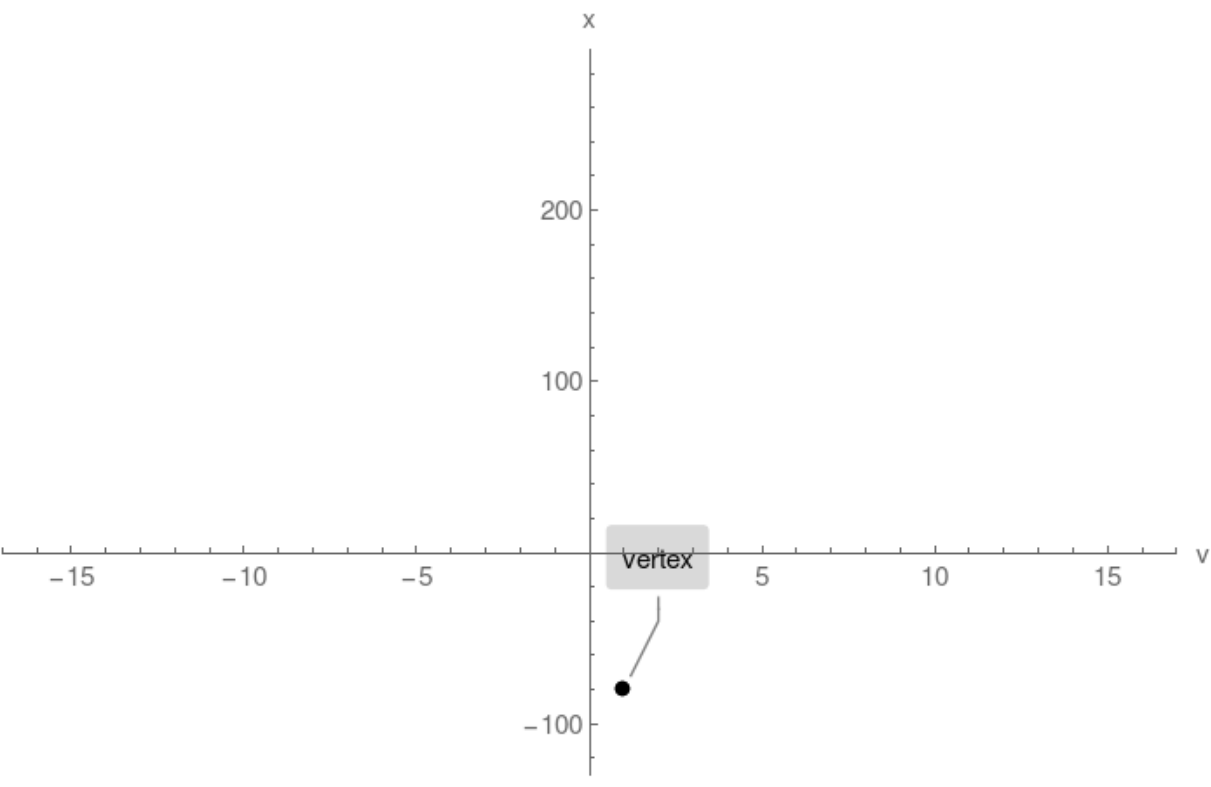
Example 1. 2 horizontal intercepts found

Plot $x(v) = v^2 - 2v - 79$

Step 1.

Compute vertex and plot single point:

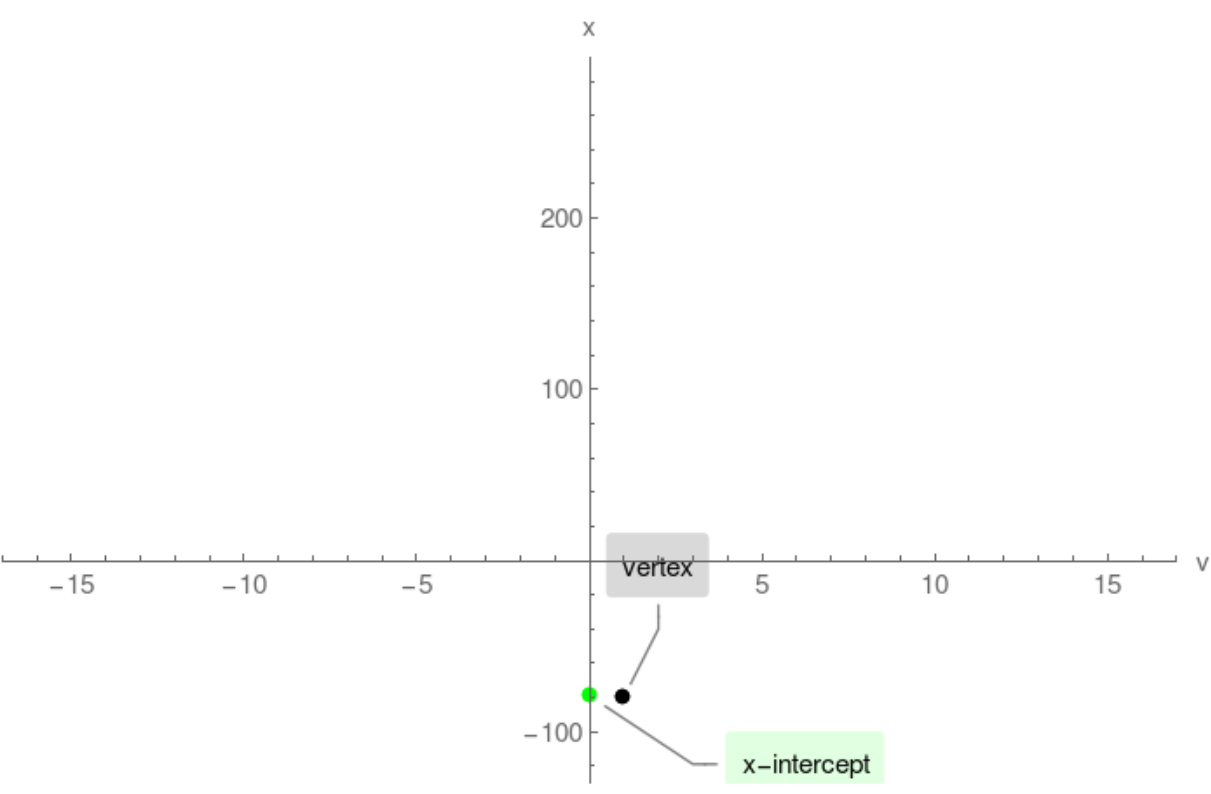
vertex = (1, −80)



Step 2.

Compute x-intercept and plot single point:

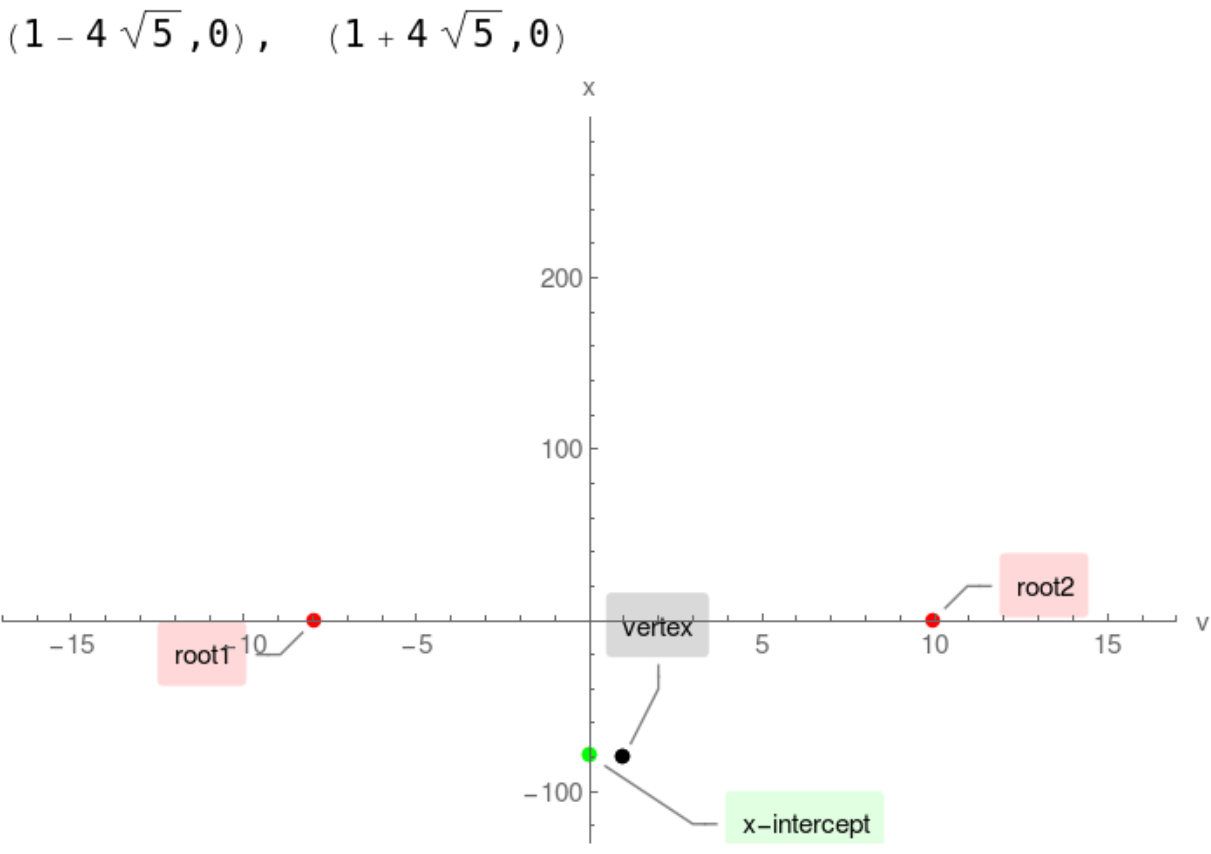
x-intercept = (0, −79)



Step 3.

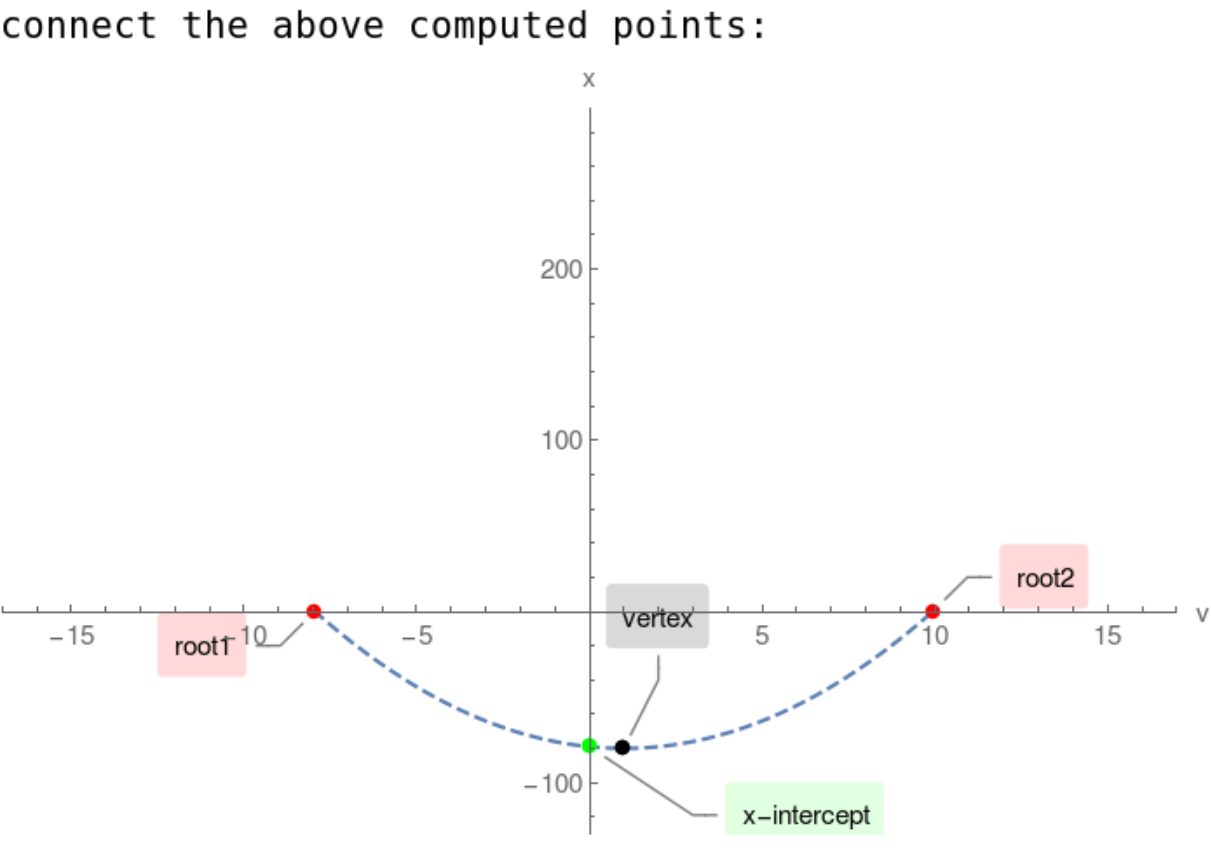
Compute v-intercepts by solving $v^2 - 2v - 79 = 0$:

$(1 - 4\sqrt{5}, 0)$, $(1 + 4\sqrt{5}, 0)$



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts