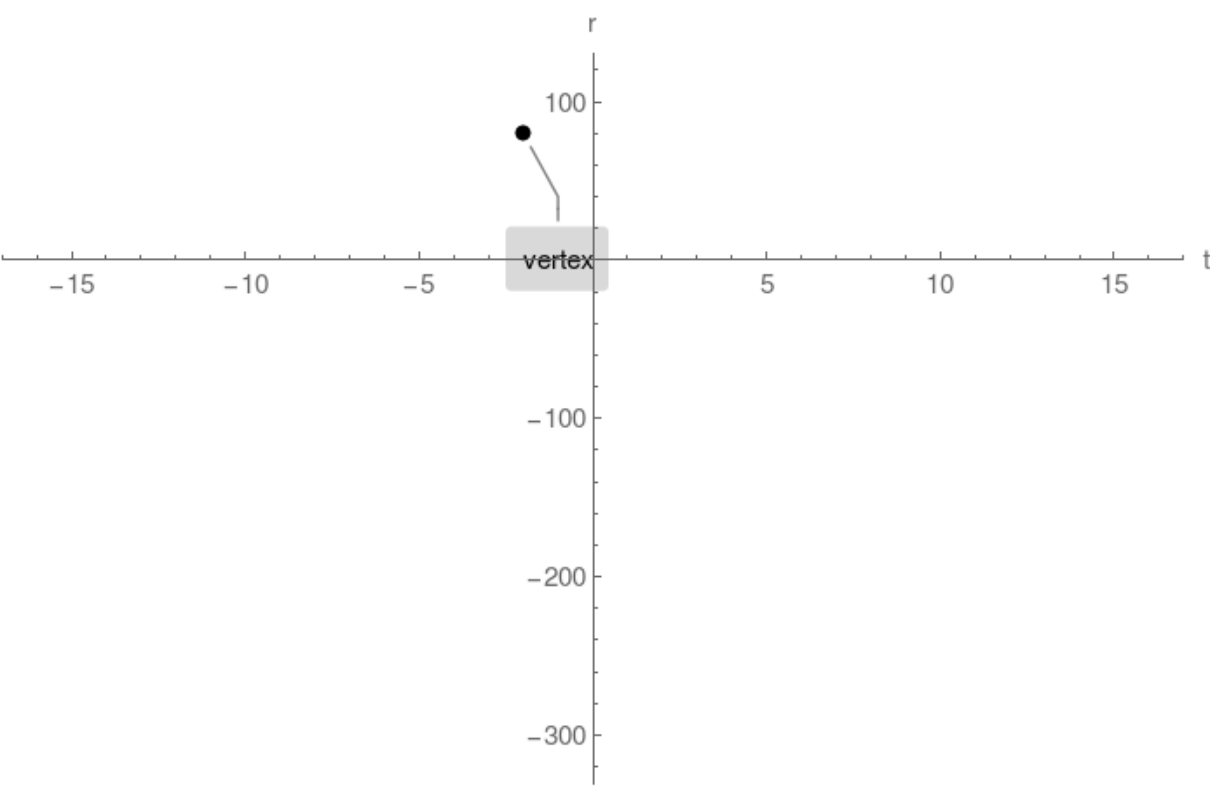
Example 1. 2 horizontal intercepts found

Plot $r(t) = -t^2 - 4t + 76$

Step 1.

Compute vertex and plot single point:

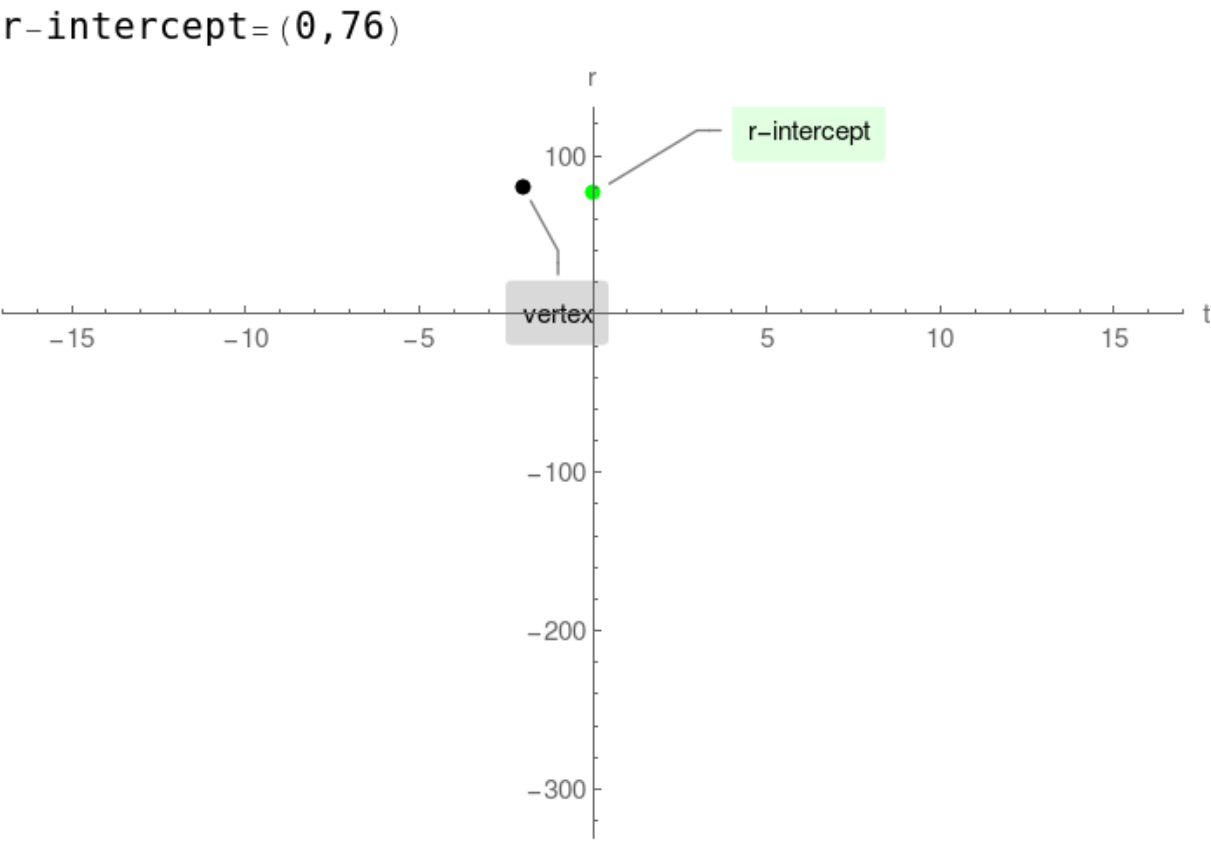
vertex $= (-2, 80)$



Step 2.

Compute r-intercept and plot single point:

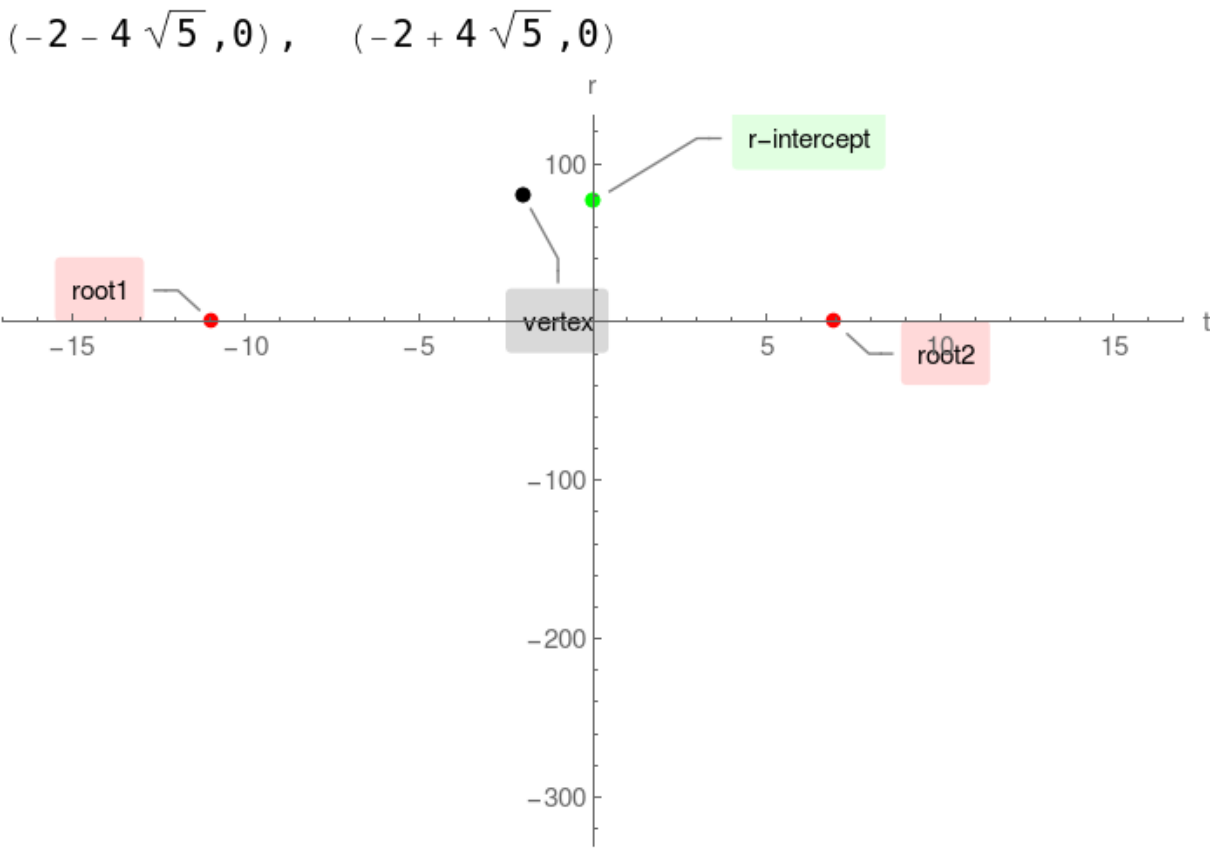
r-intercept $= (0, 76)$



Step 3.

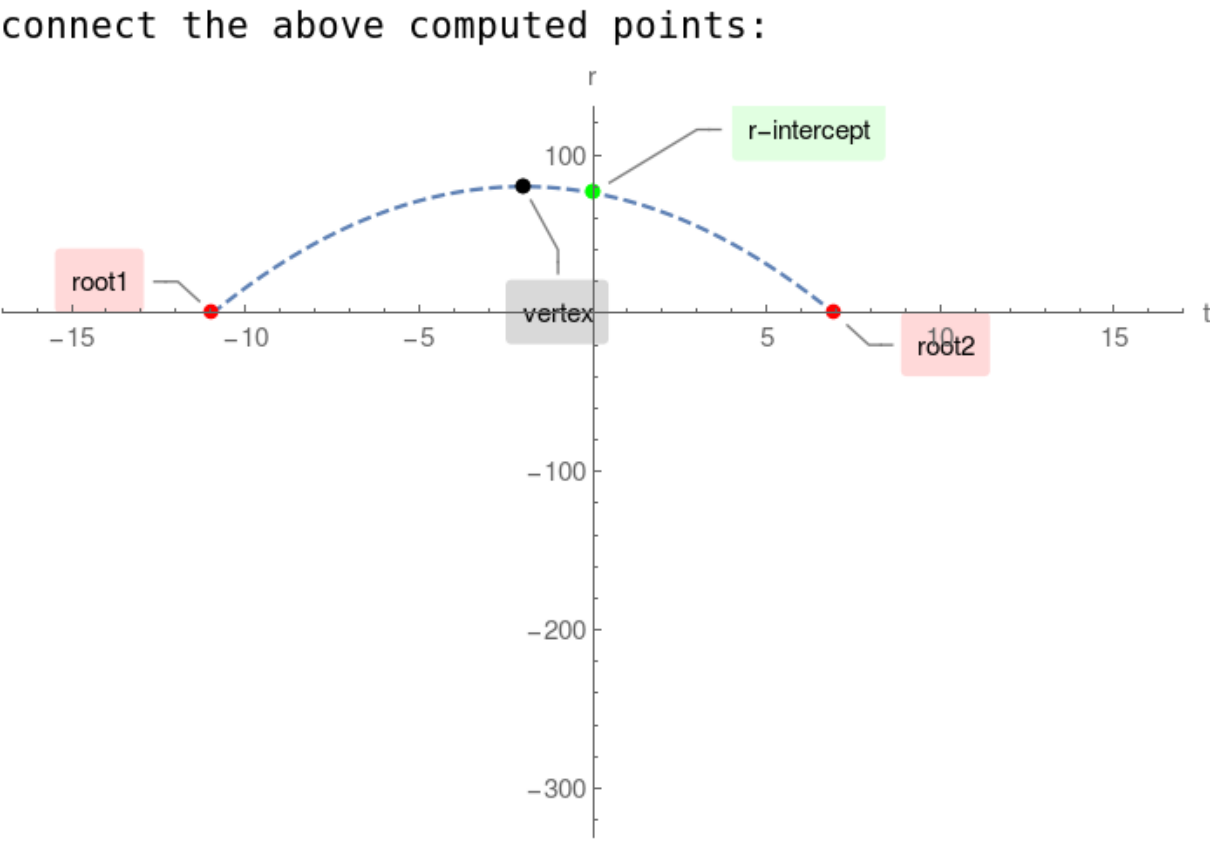
Compute t-intercepts by solving $-t^2 - 4t + 76 = 0$:

$(-2 - 4\sqrt{5}, 0)$, $(-2 + 4\sqrt{5}, 0)$



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts