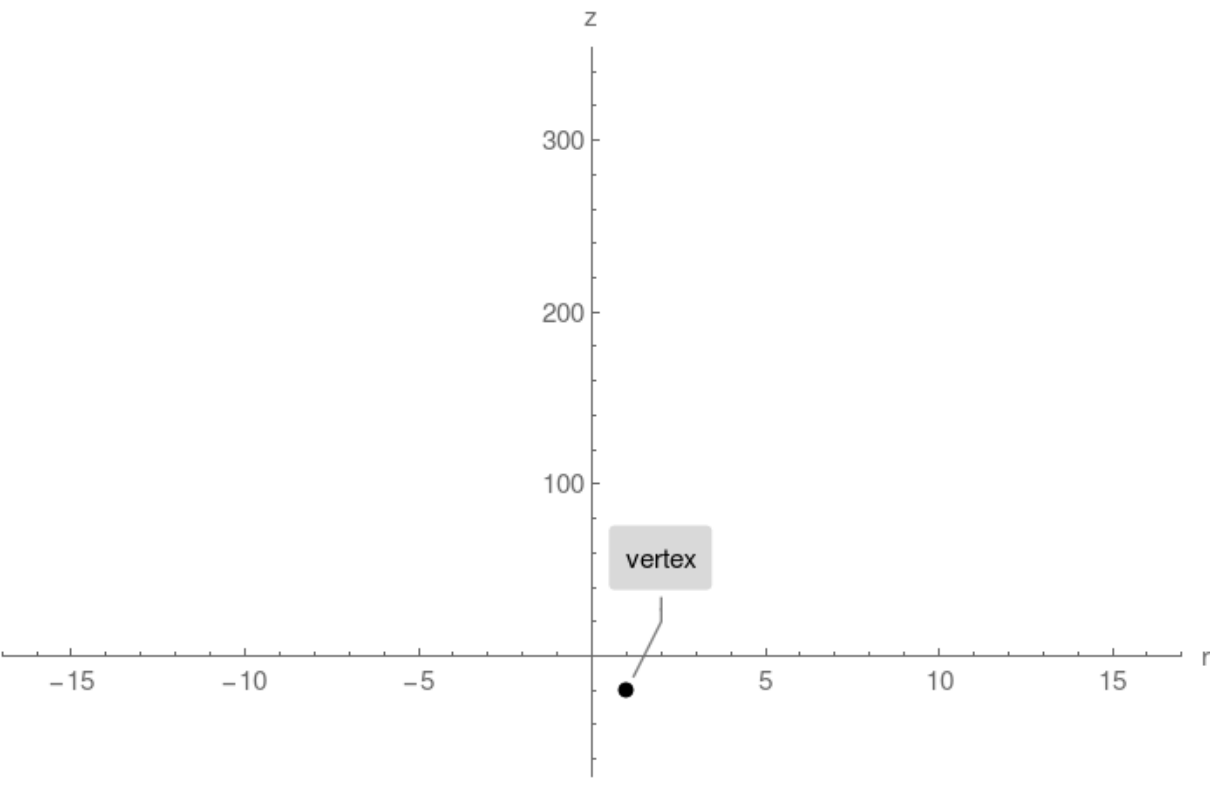
Example 1. 2 horizontal intercepts found

Plot $z(r)=r^2-2r-19$

Step 1.

Compute vertex and plot single point:

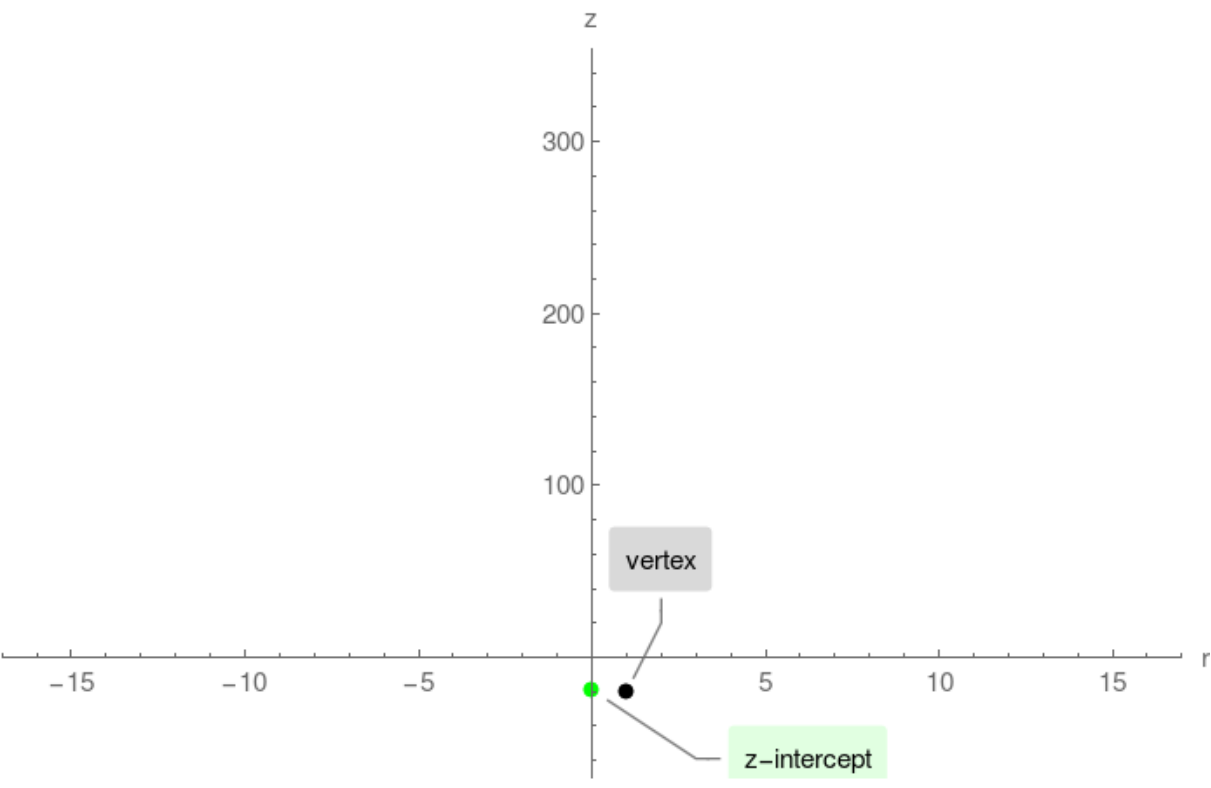
vertex$=(1,-20)$



Step 2.

Compute z-intercept and plot single point:

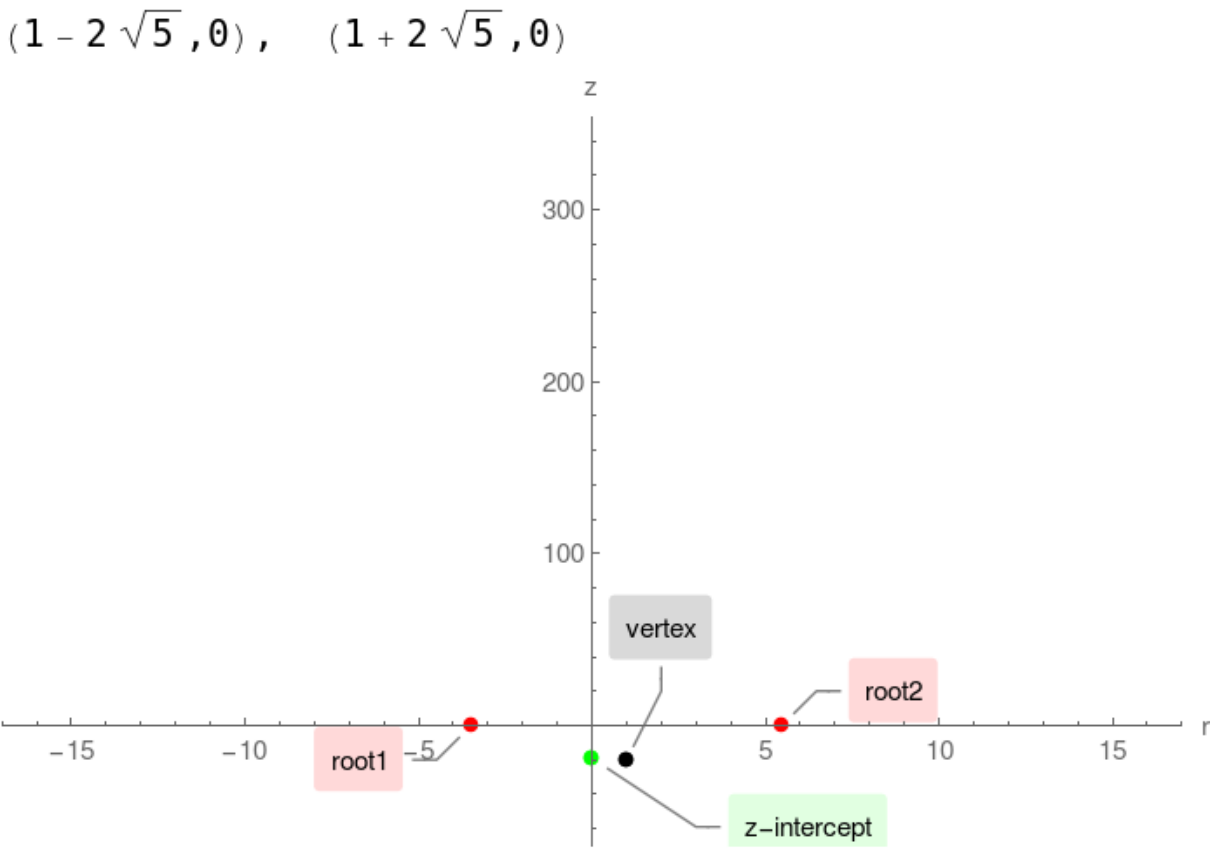
z-intercept$=(0,-19)$



Step 3.

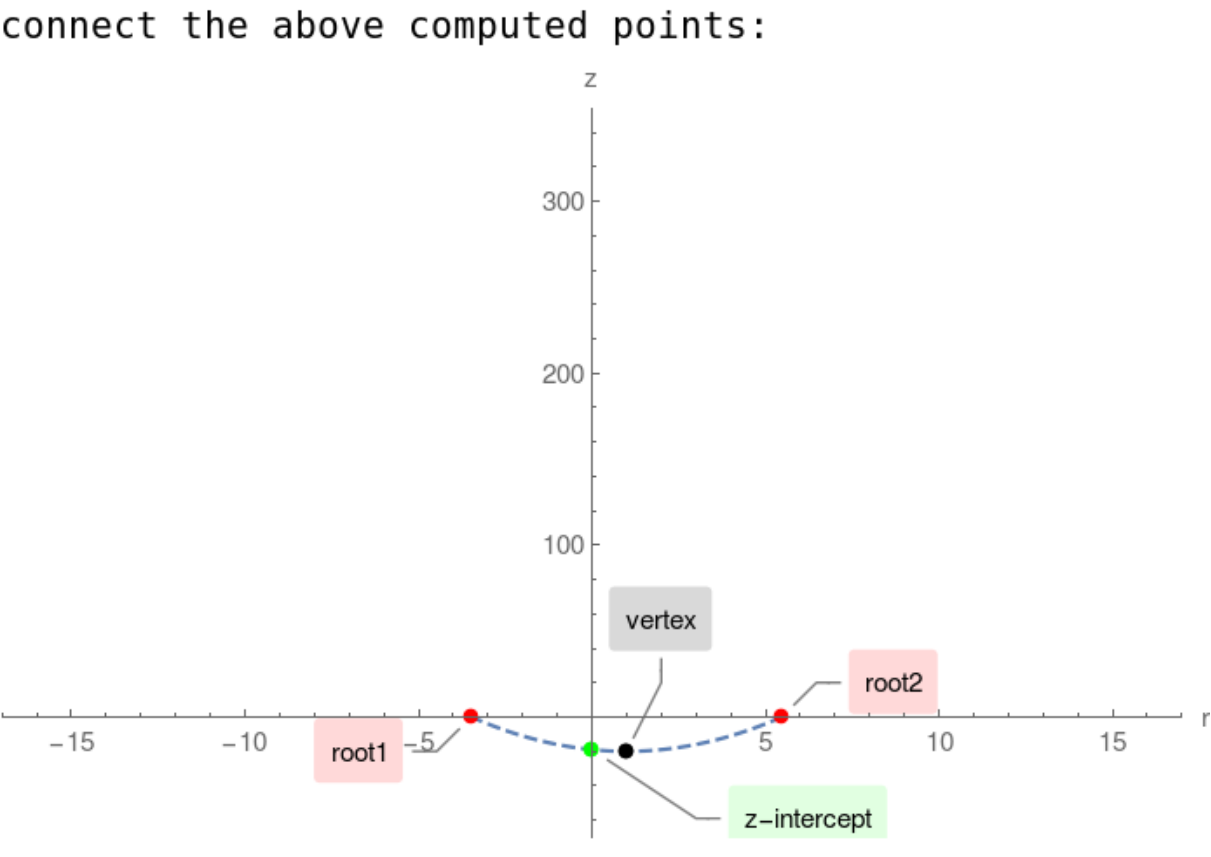
Compute r-intercepts by solving $r^2-2r-19=0$:

$(1-2\sqrt{5},0)$, $(1+2\sqrt{5},0)$



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts