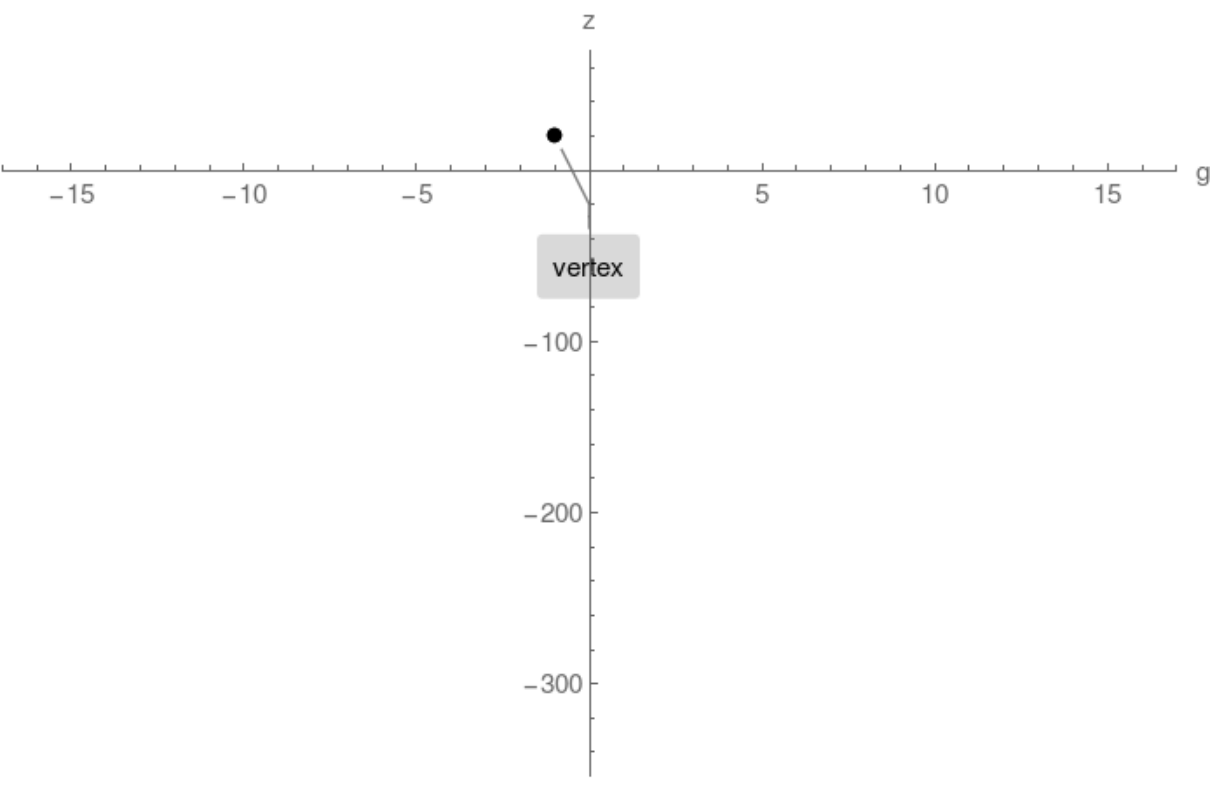
Example 1. 2 horizontal intercepts found

Plot $z(g) = -g^2 - 2g + 19$

Step 1.

Compute vertex and plot single point:

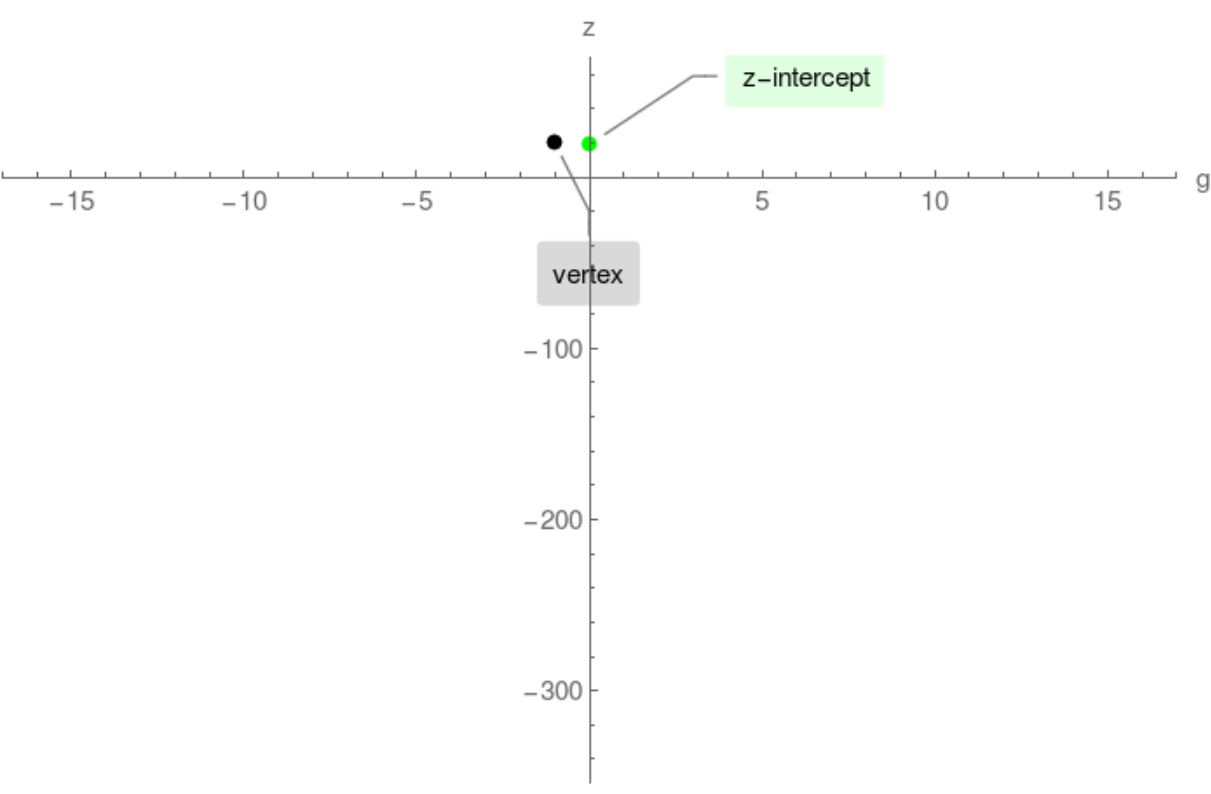
vertex $= (-1, 20)$



Step 2.

Compute z-intercept and plot single point:

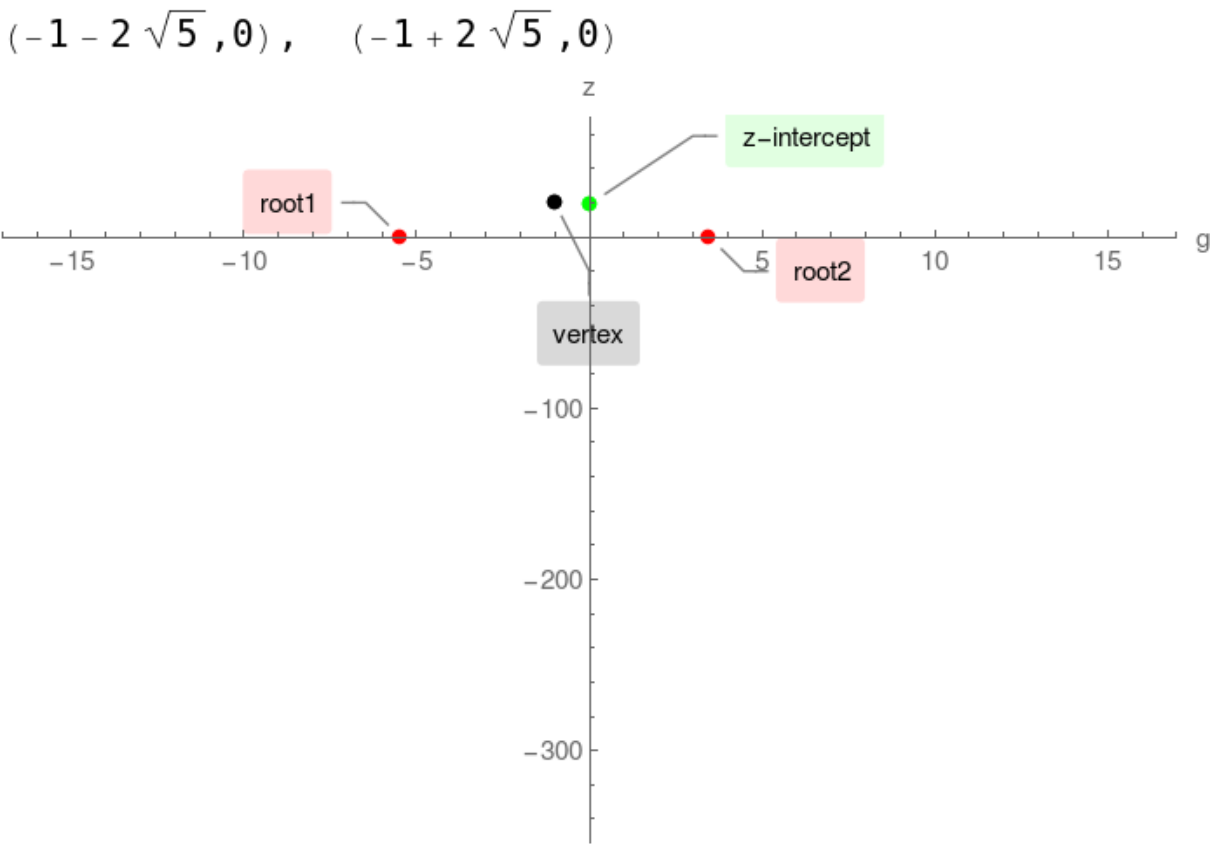
z-intercept $= (0, 19)$



Step 3.

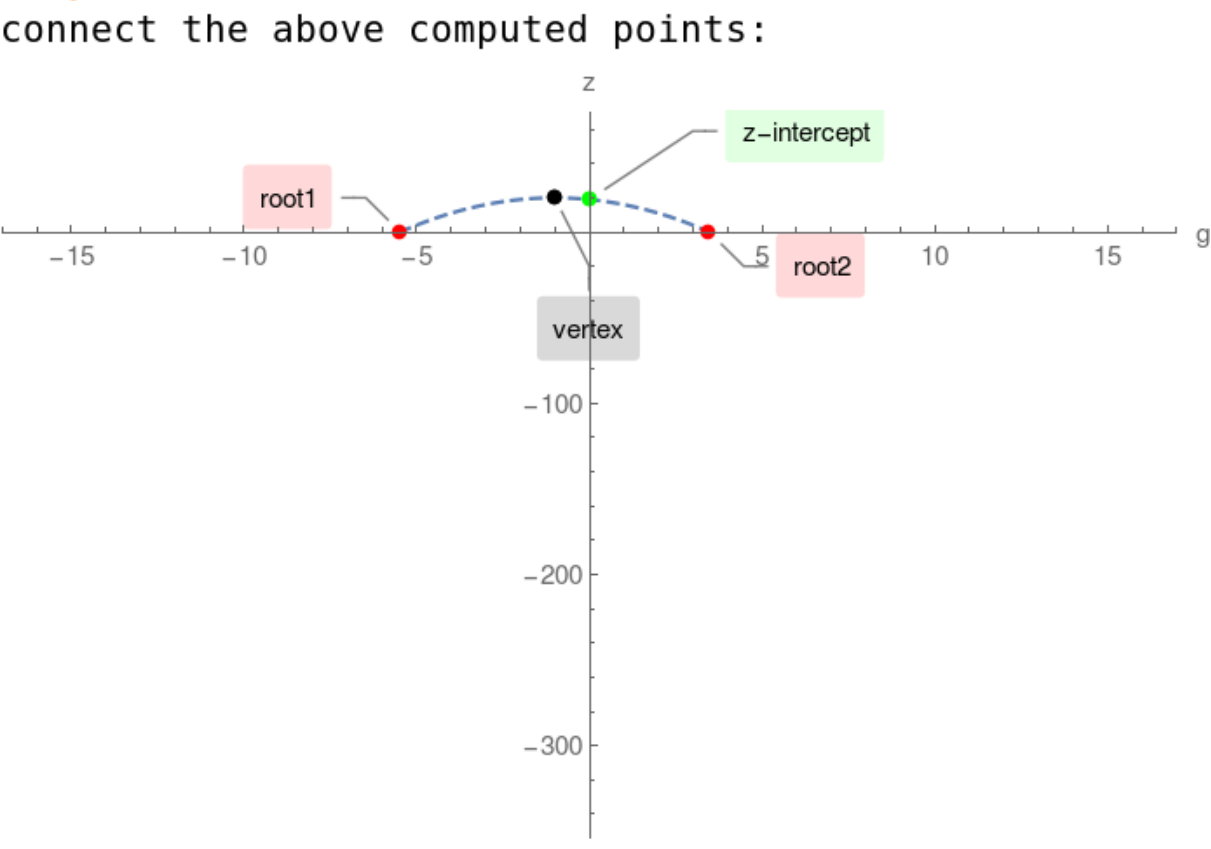
Compute g-intercepts by solving $-g^2 - 2g + 19 = 0$:

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



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts