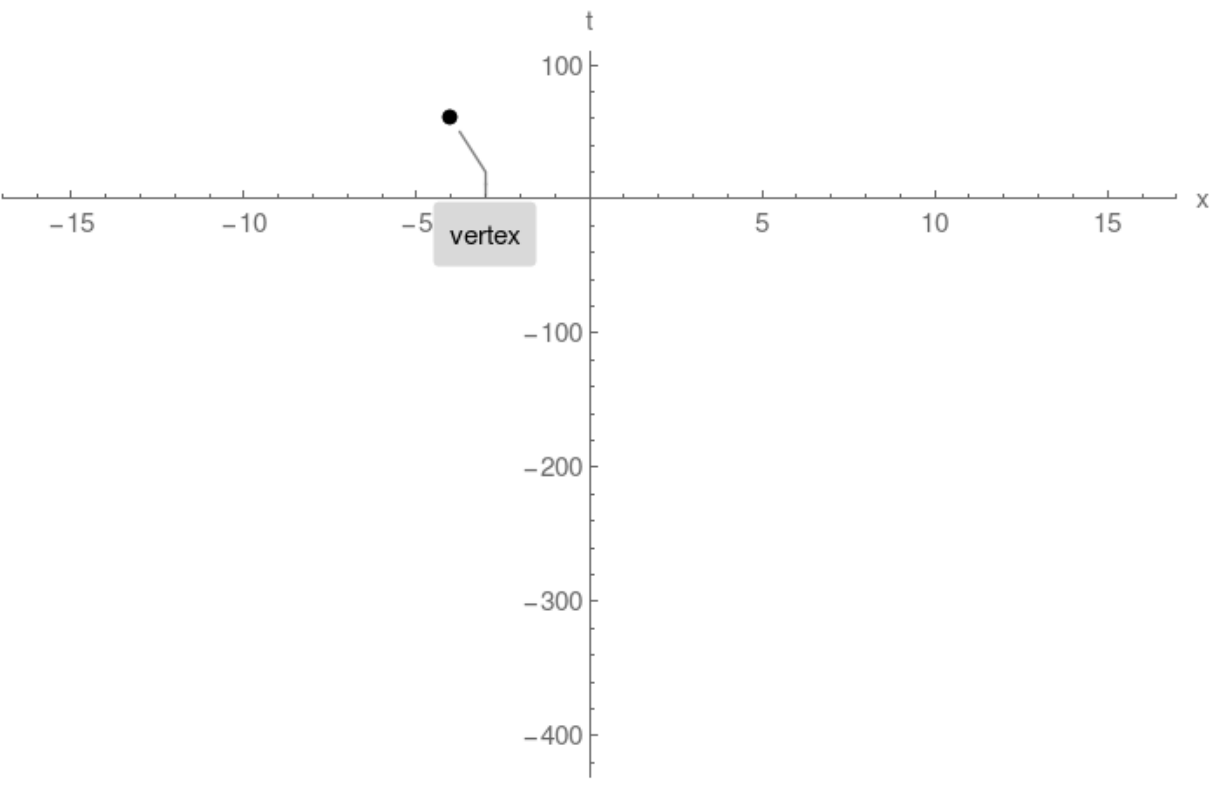
Example 1. 2 horizontal intercepts found

Plot $t(x) = -x^2 - 8x + 44$

Step 1.

Compute vertex and plot single point:

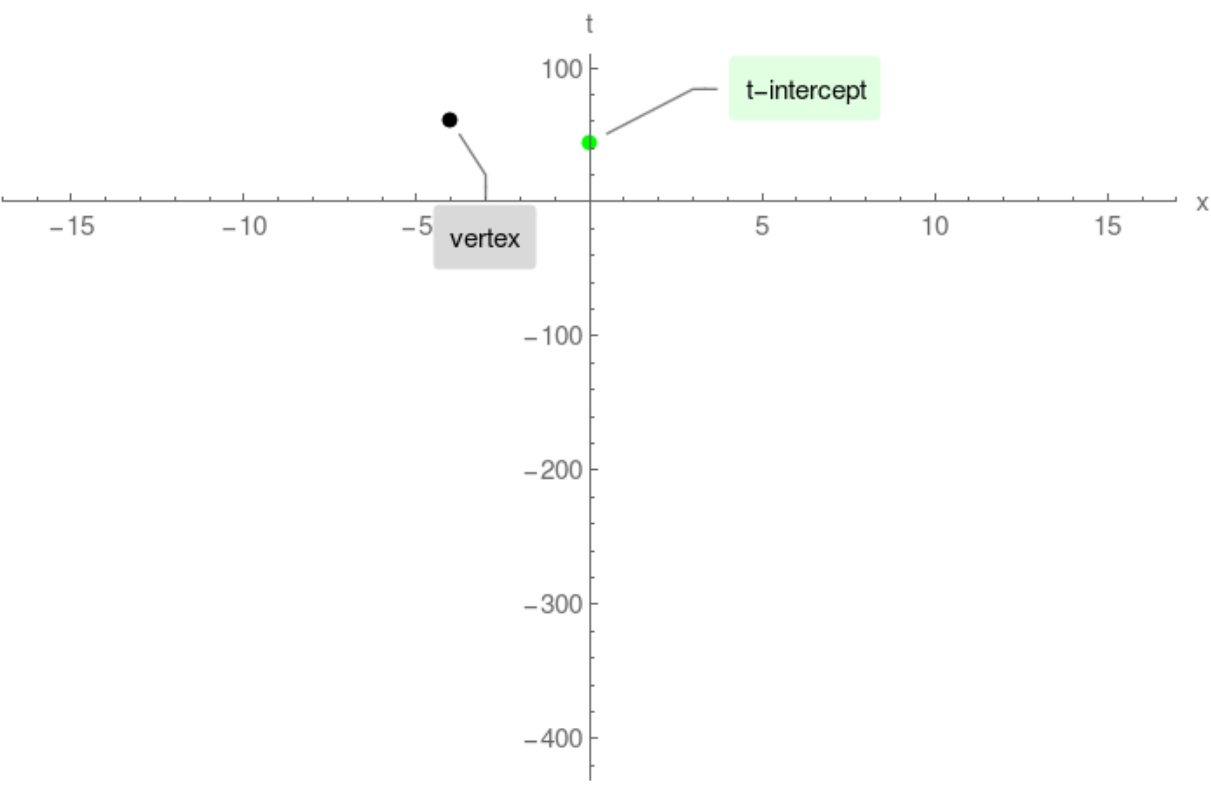
vertex $= (-4, 60)$



Step 2.

Compute t-intercept and plot single point:

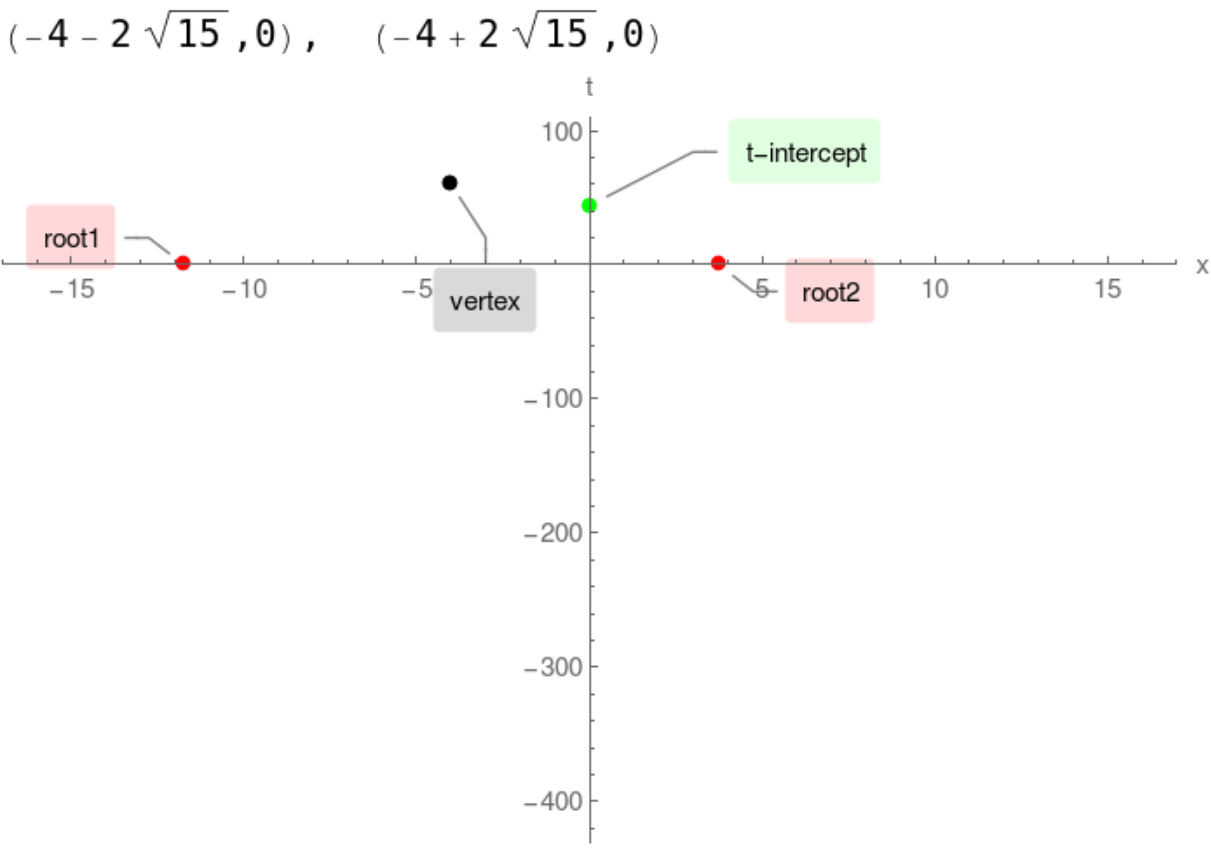
t-intercept $= (0, 44)$



Step 3.

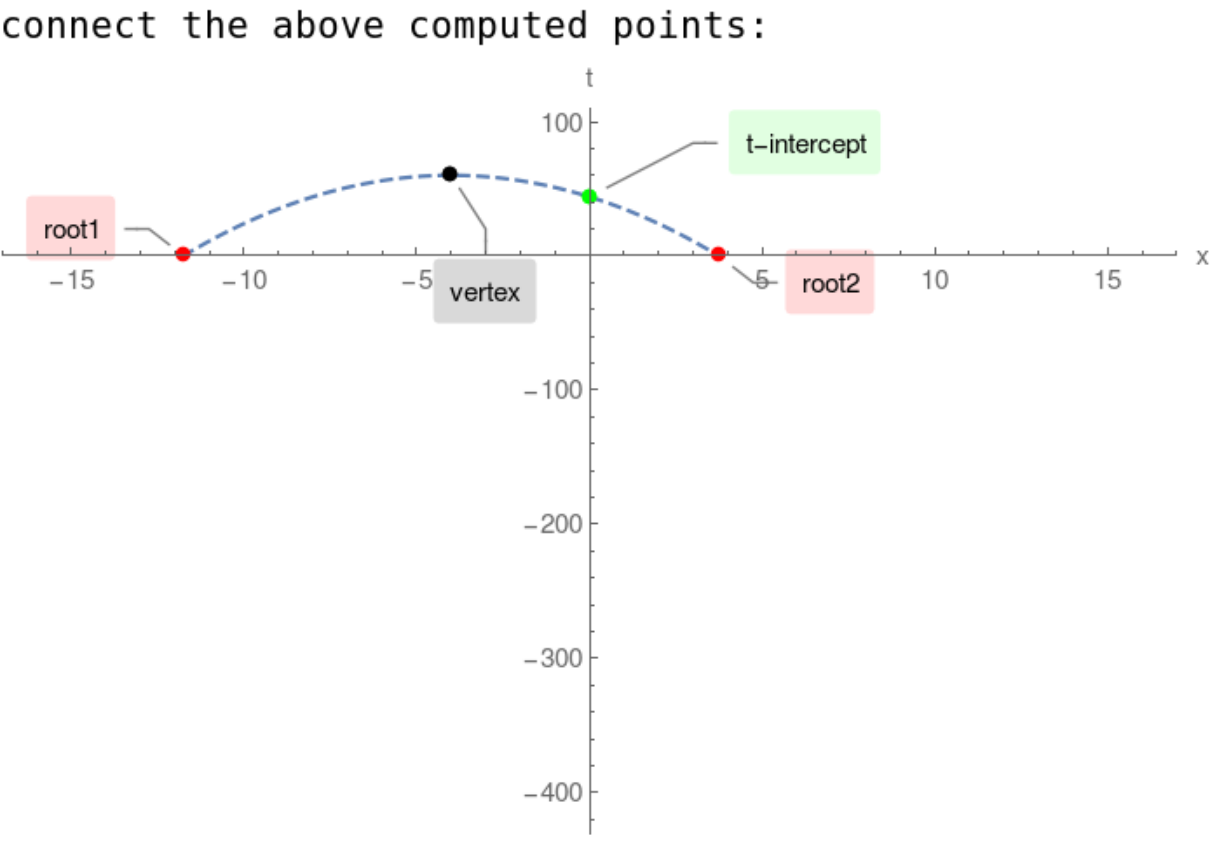
Compute x-intercepts by solving $-x^2 - 8x + 44 = 0$:

$(-4 - 2\sqrt{15}, 0)$, $(-4 + 2\sqrt{15}, 0)$



Step 4.

connect the above computed points:



Step 5.

Extend the parabola beyond the range of intercepts