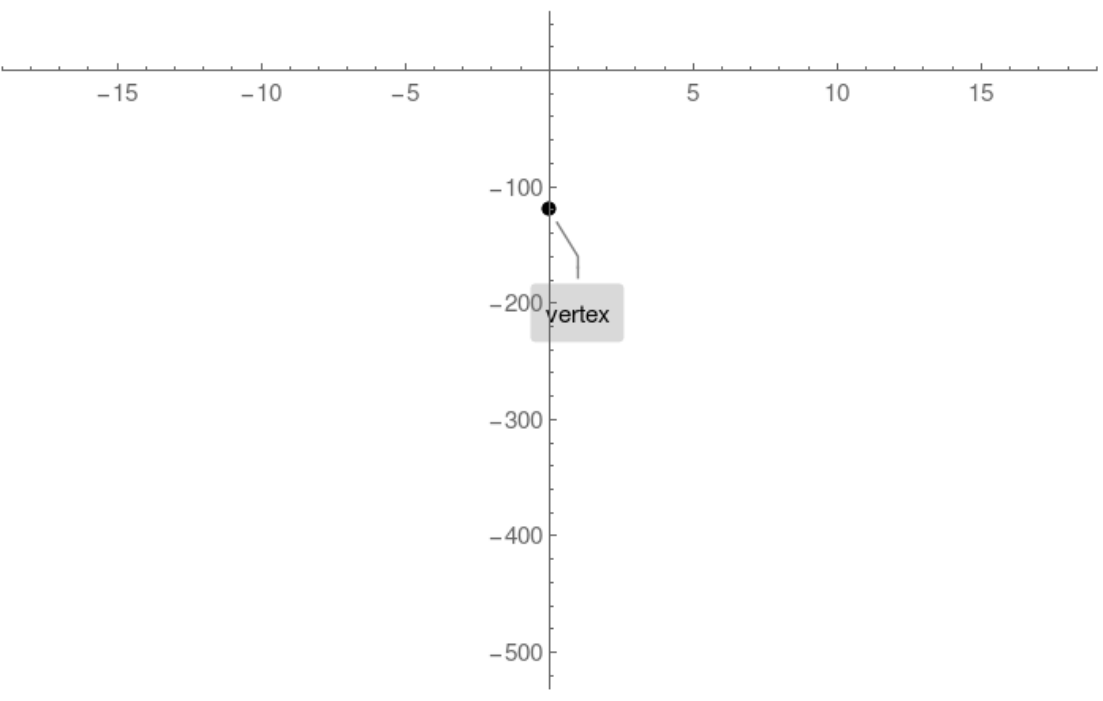
Example 3. Vertex equal to vertical intercept

Plot $r(j) = -j^2 - 120$

Step 1.

Compute vertex and plot single point:

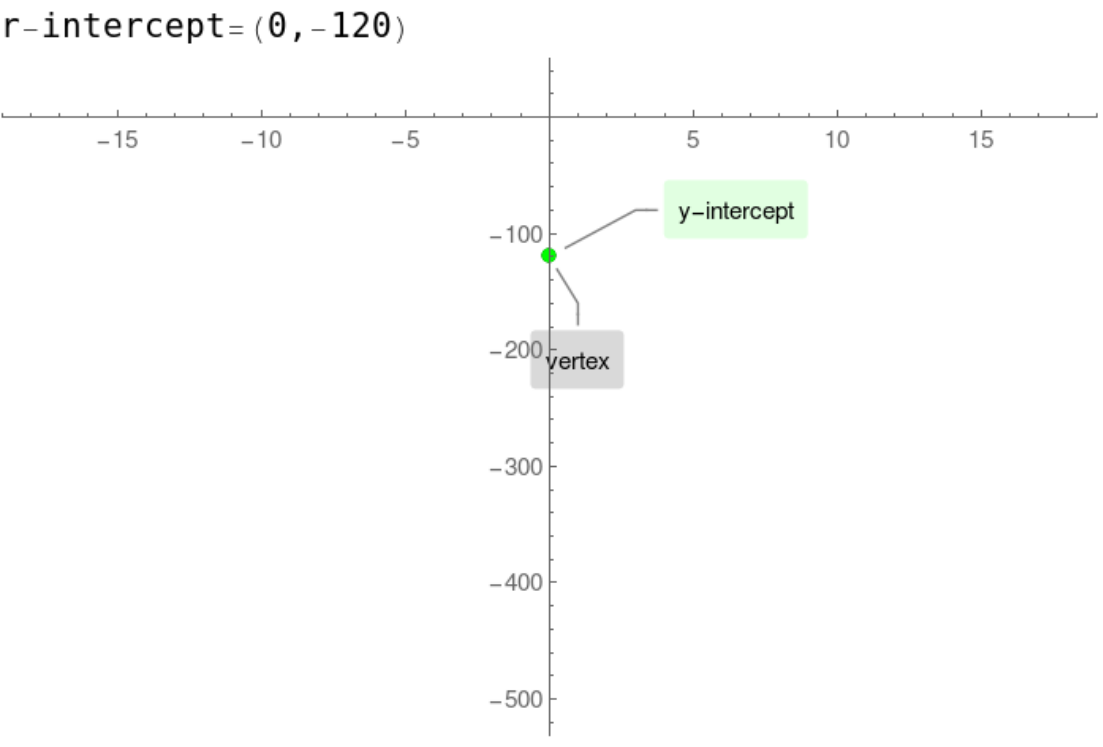
vertex $= (0, -120)$



Step 2.

Compute r-intercept and plot single point:

r-intercept $= (0, -120)$

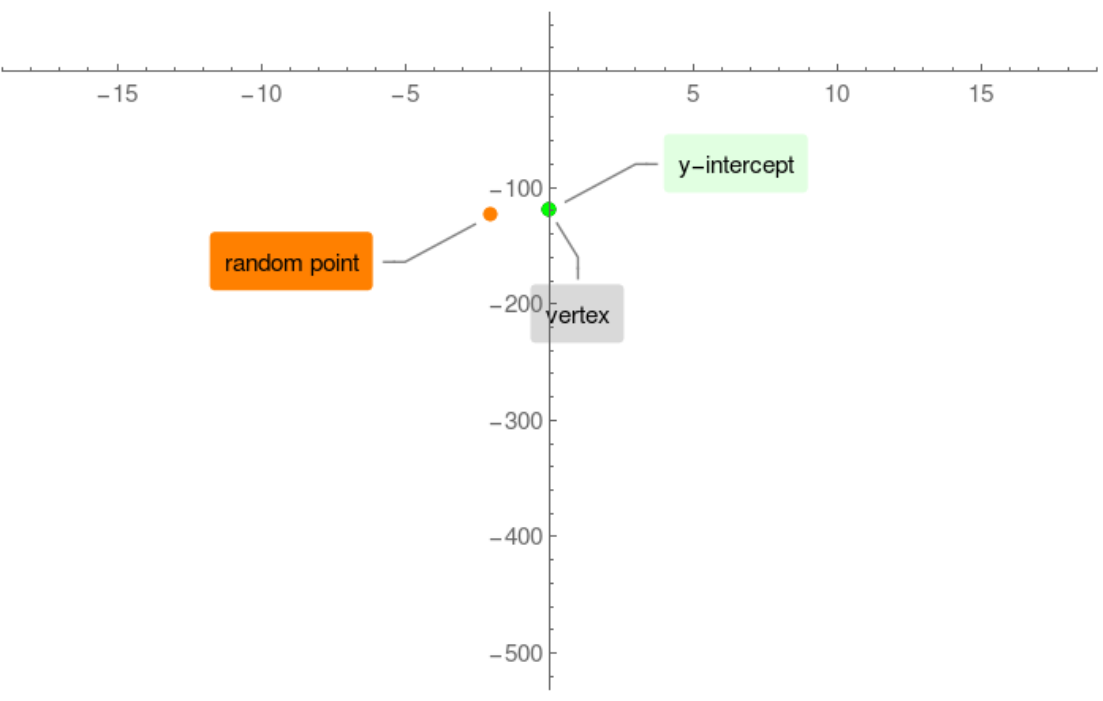


Step 3.

There are no j-intercepts!

Instead compute an arbitrary point on any side of vertex:

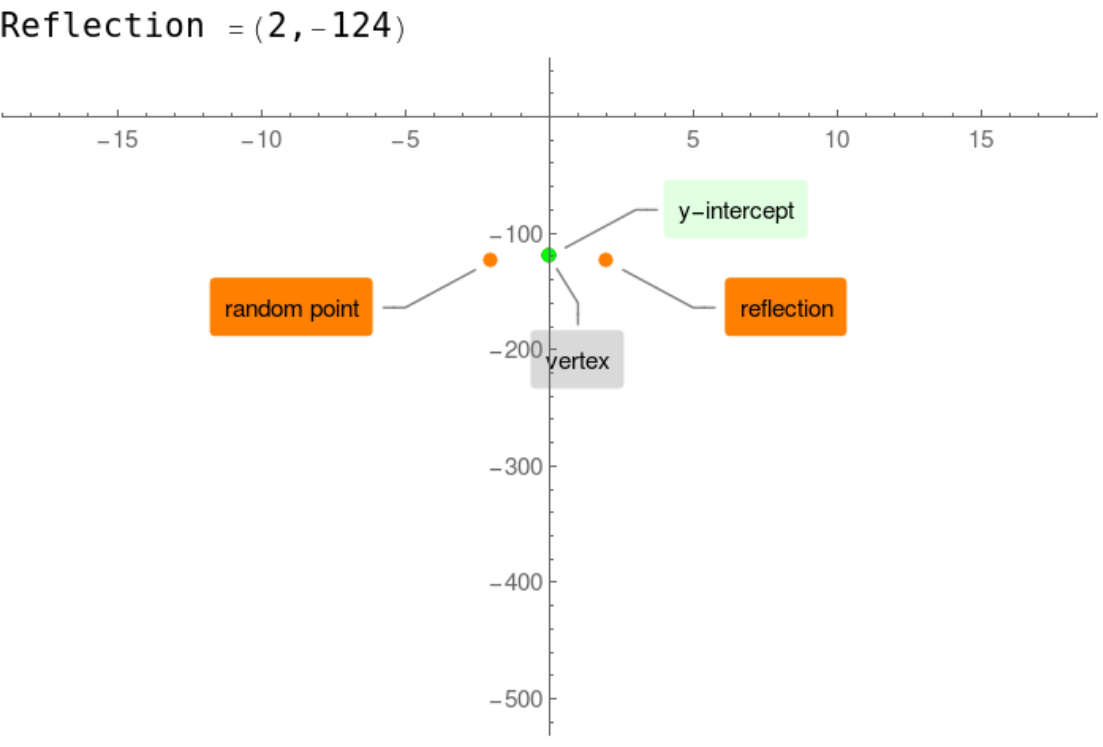
Random point $= (-2, -124)$



Step 4.

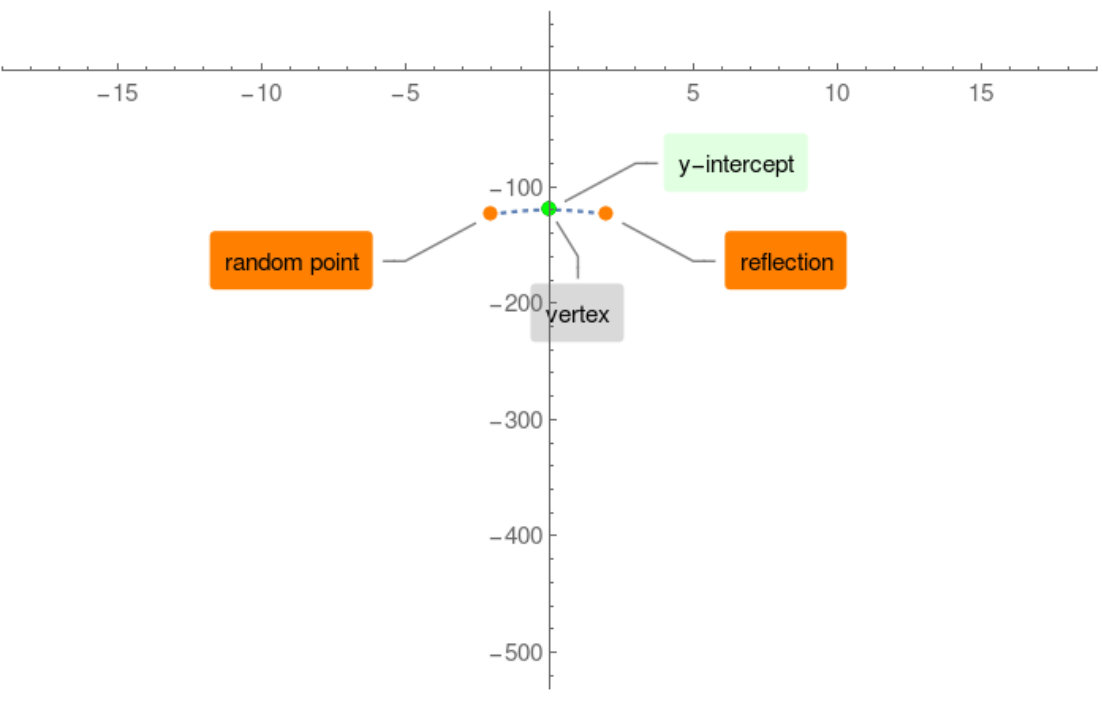
Reflect the point against the vertex's vertical axes:

Reflection $= (2, -124)$



Step 5.

connect the above computed points:



Step 6.

Extend the parabola beyond the range of intercepts