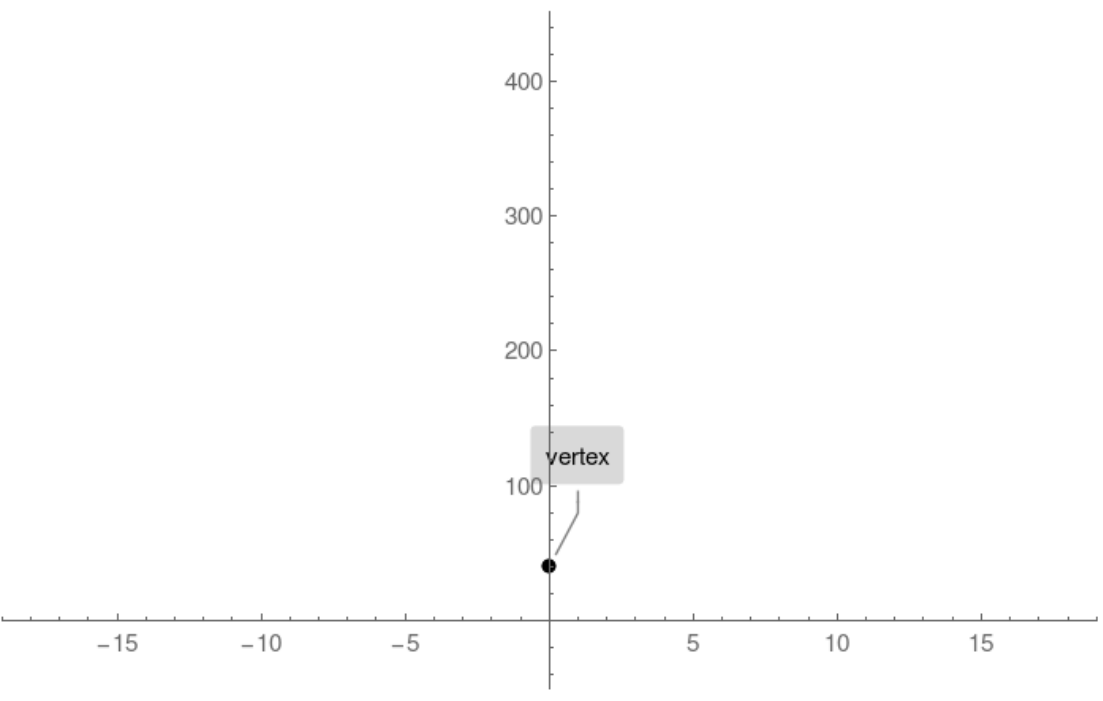
Example 3. Vertex equal to vertical intercept

Plot $x(r) = r^2 + 40$

Step 1.

Compute vertex and plot single point:

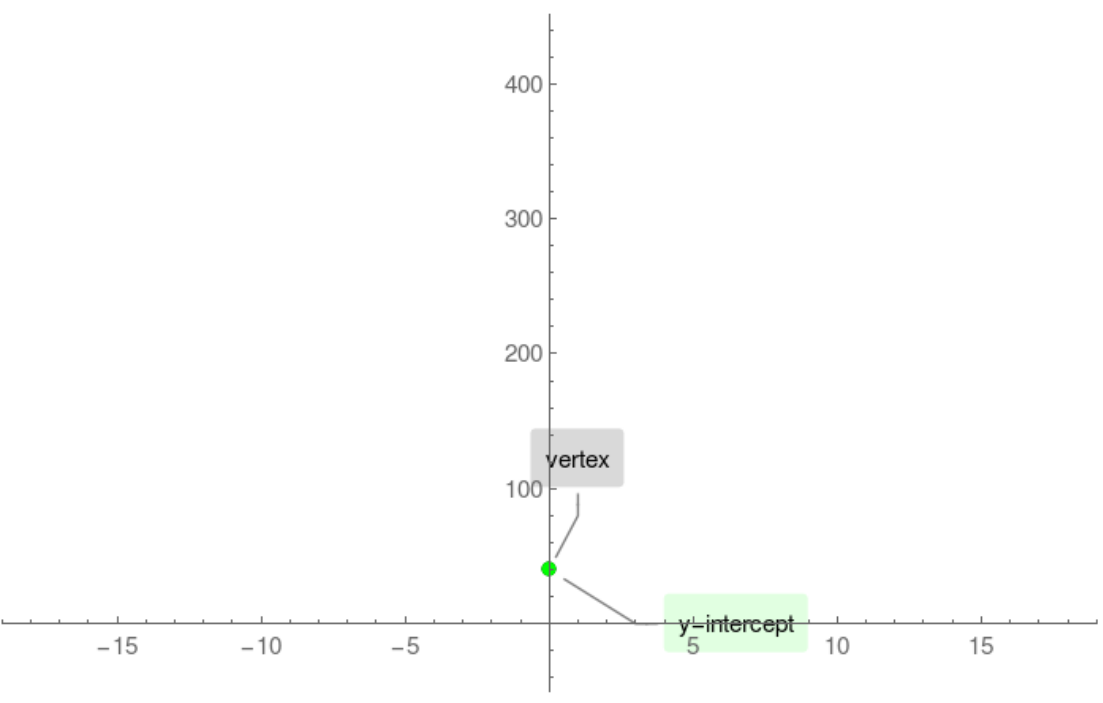
vertex = (0,40)



Step 2.

Compute x-intercept and plot single point:

x-intercept = (0,40)

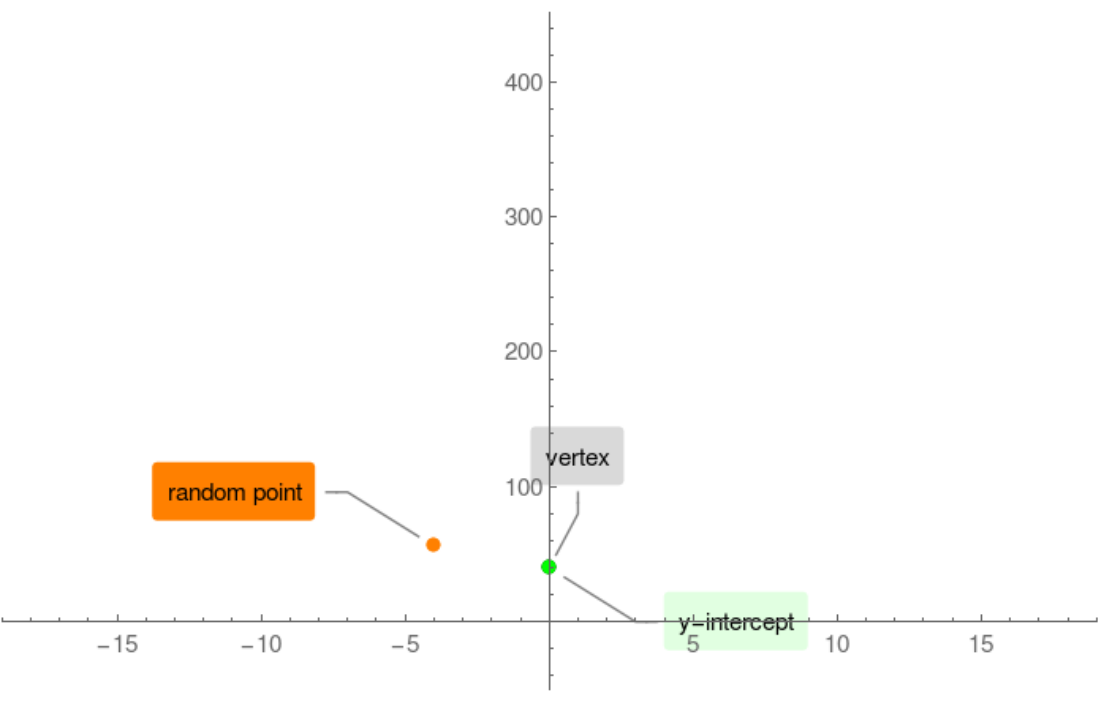


Step 3.

There are no r-intercepts!

Instead compute an arbitrary point on any side of vertex:

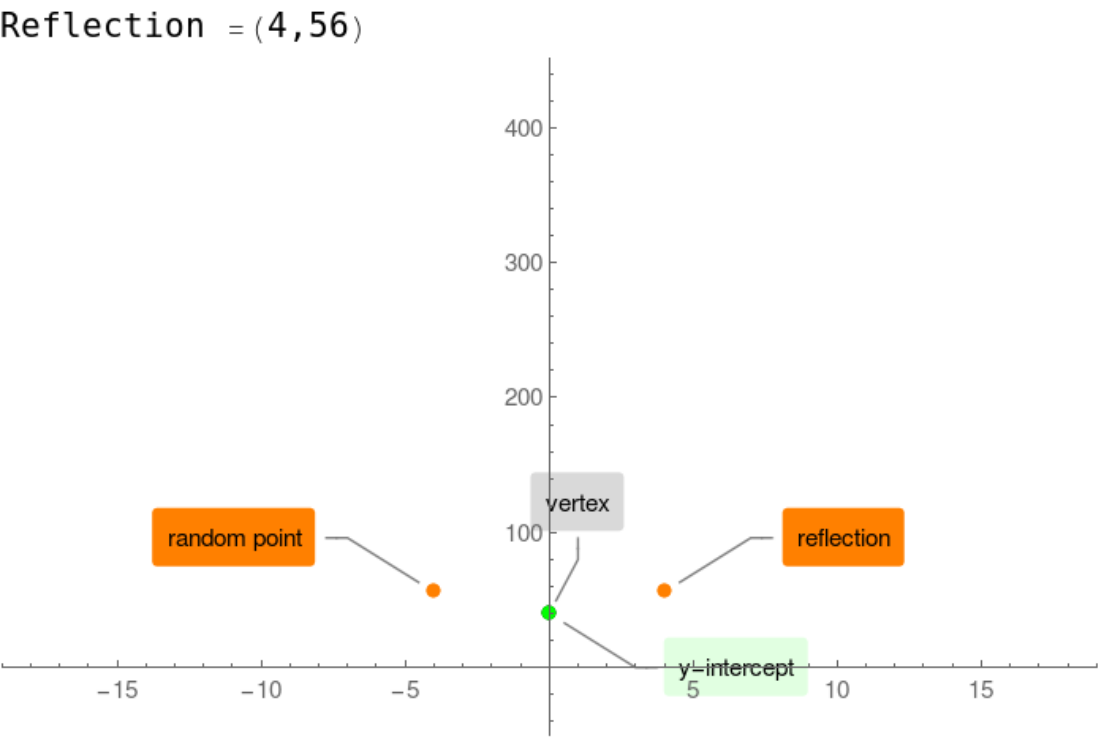
Random point = (−4,56)



Step 4.

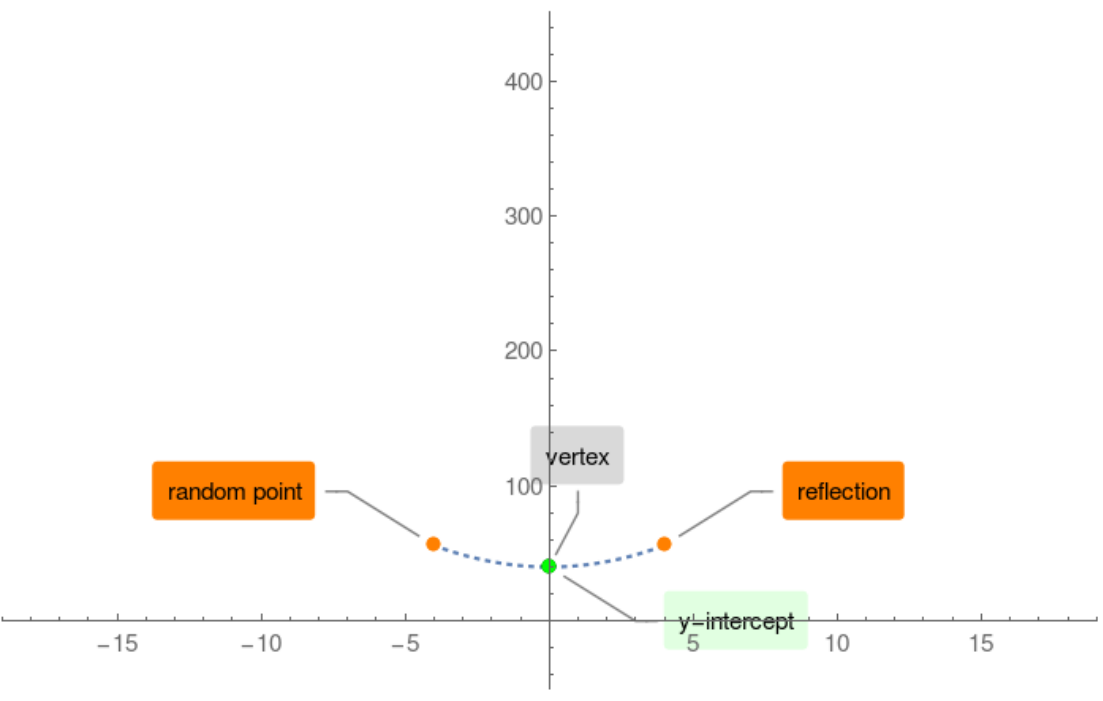
Reflect the point against the vertex's vertical axes:

Reflection = (4,56)



Step 5.

connect the above computed points:



Step 6.

Extend the parabola beyond the range of intercepts