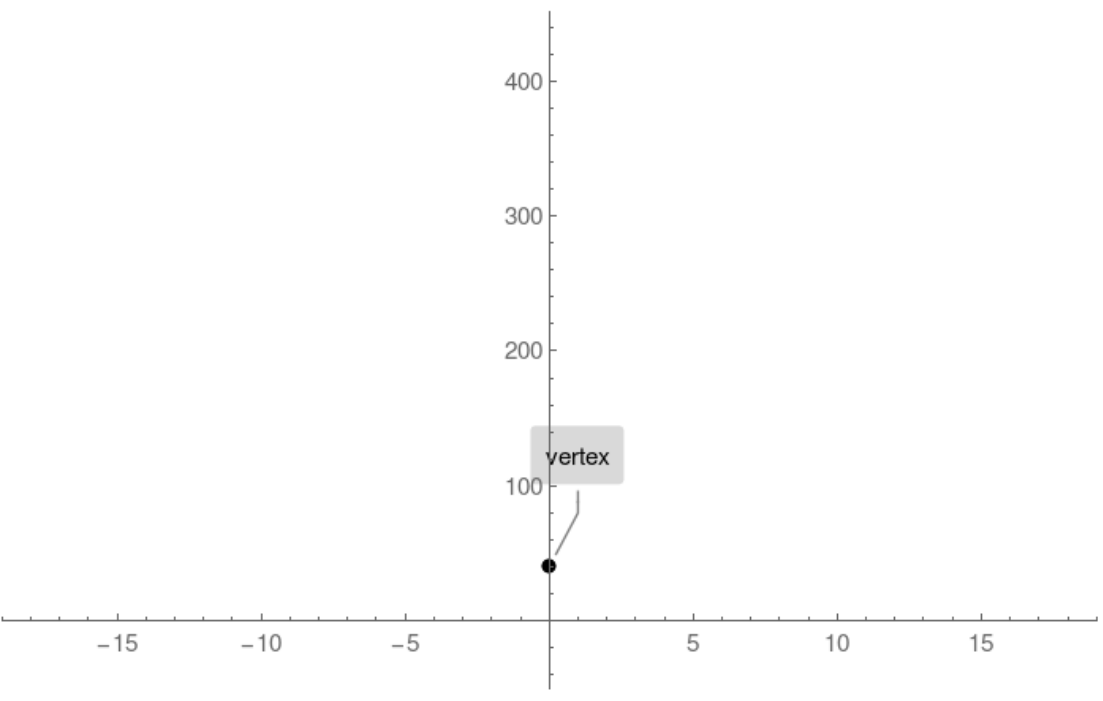
Example 3. Vertex equal to vertical intercept

Plot $g(k)=k^2+40$

Step 1.

Compute vertex and plot single point:

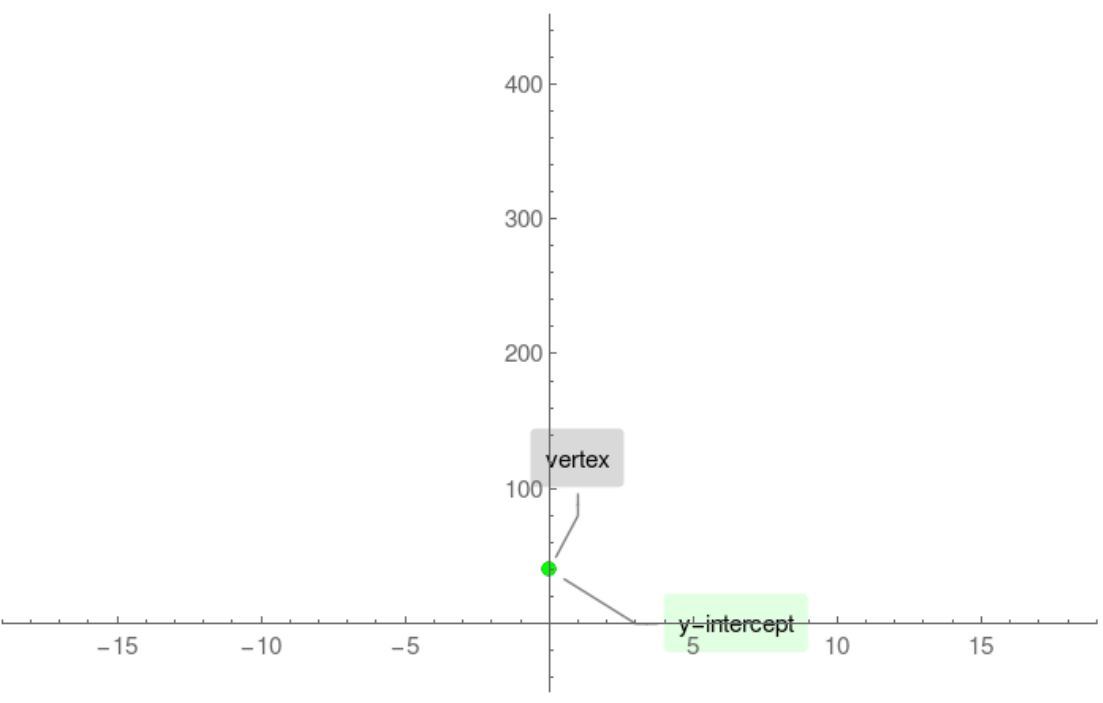
vertex$=(0,40)$



Step 2.

Compute g-intercept and plot single point:

g-intercept$=(0,40)$

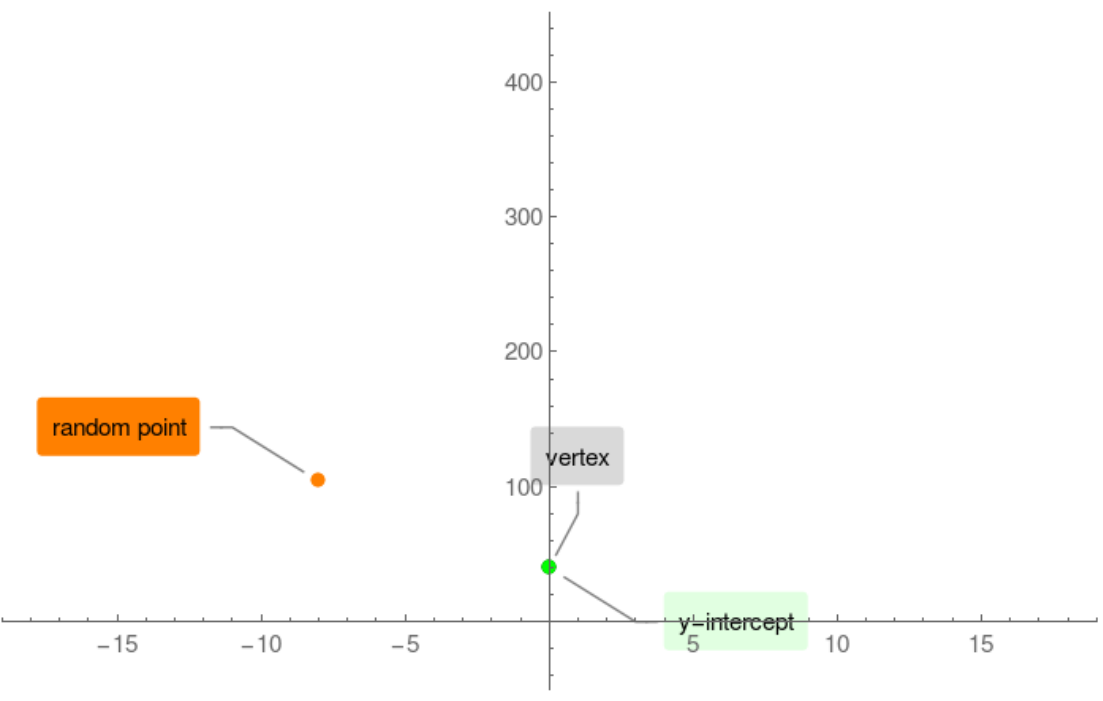


Step 3.

There are no k-intercepts!

Instead compute an arbitrary point on any side of vertex:

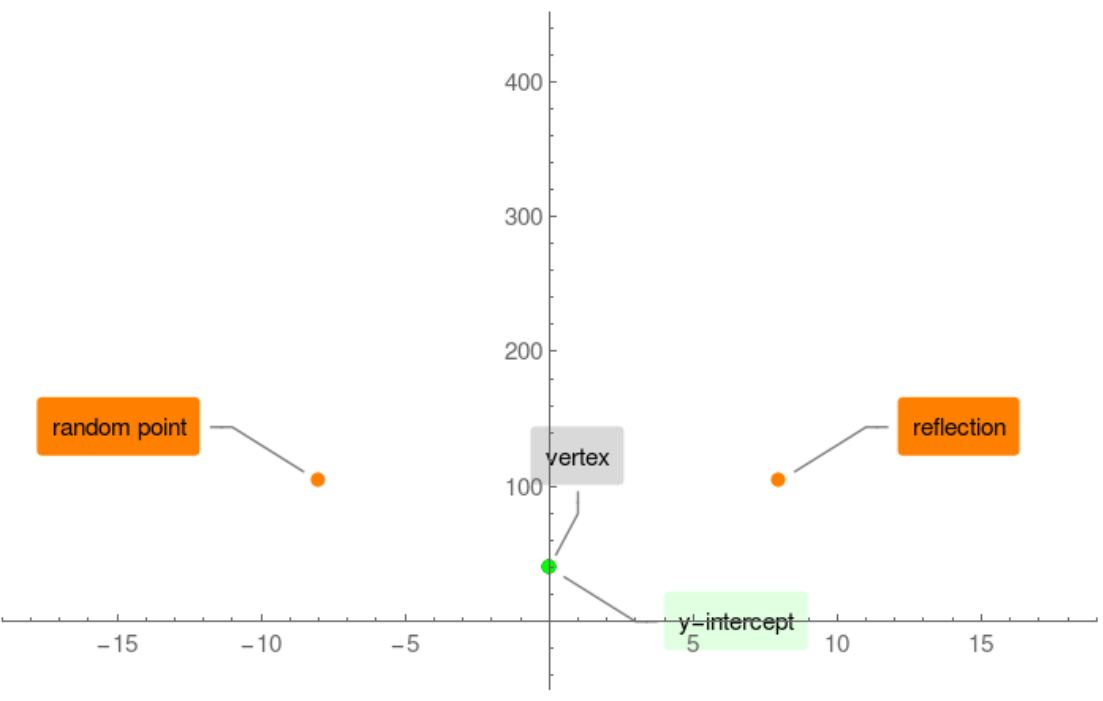
Random point$=(-8,104)$



Step 4.

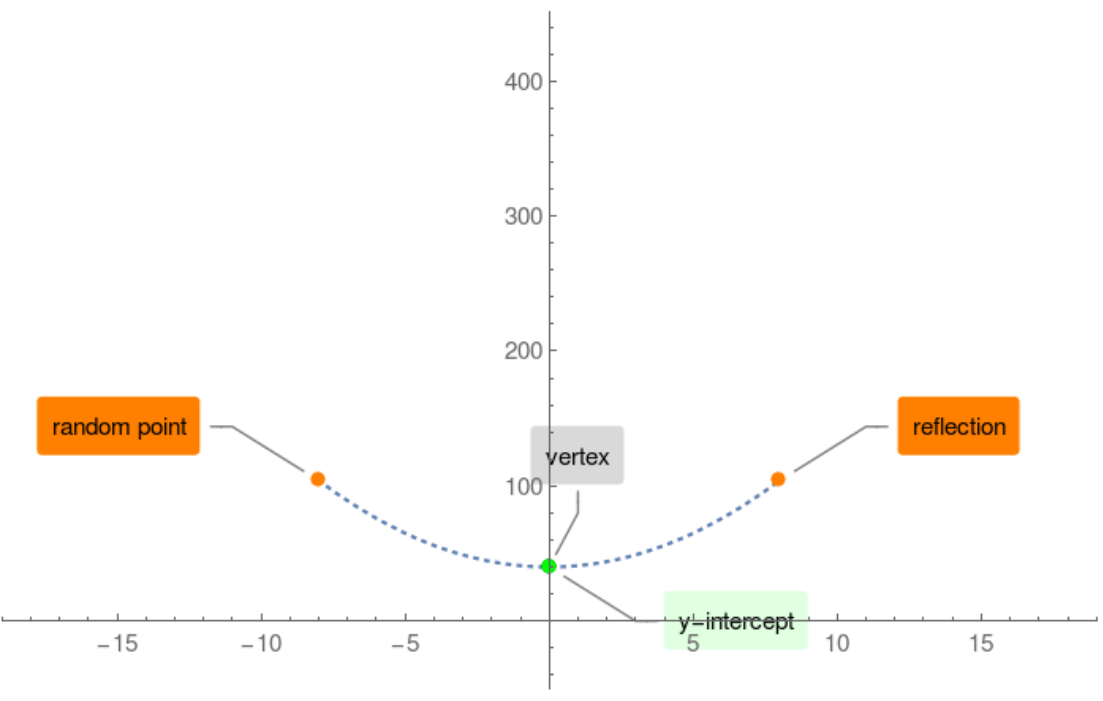
Reflect the point against the vertex's vertical axes:

Reflection $=(8,104)$



Step 5.

connect the above computed points:



Step 6.

Extend the parabola beyond the range of intercepts