

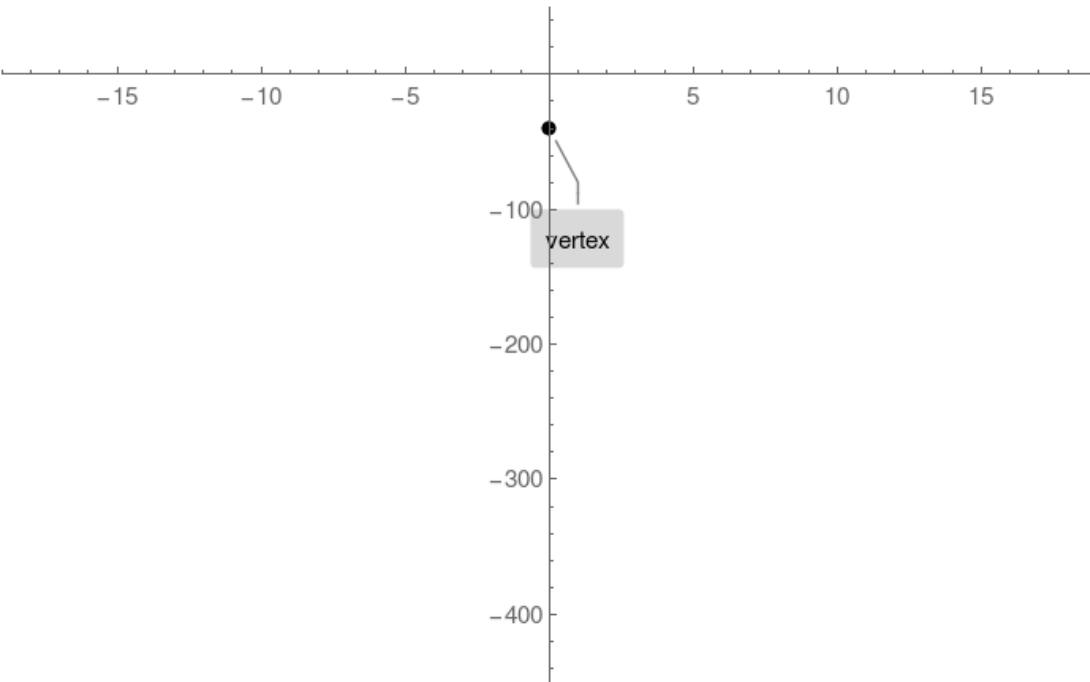
Example 3. Vertex equal to vertical intercept

Plot $q(w) = -w^2 - 40$

Step 1.

Compute vertex and plot single point:

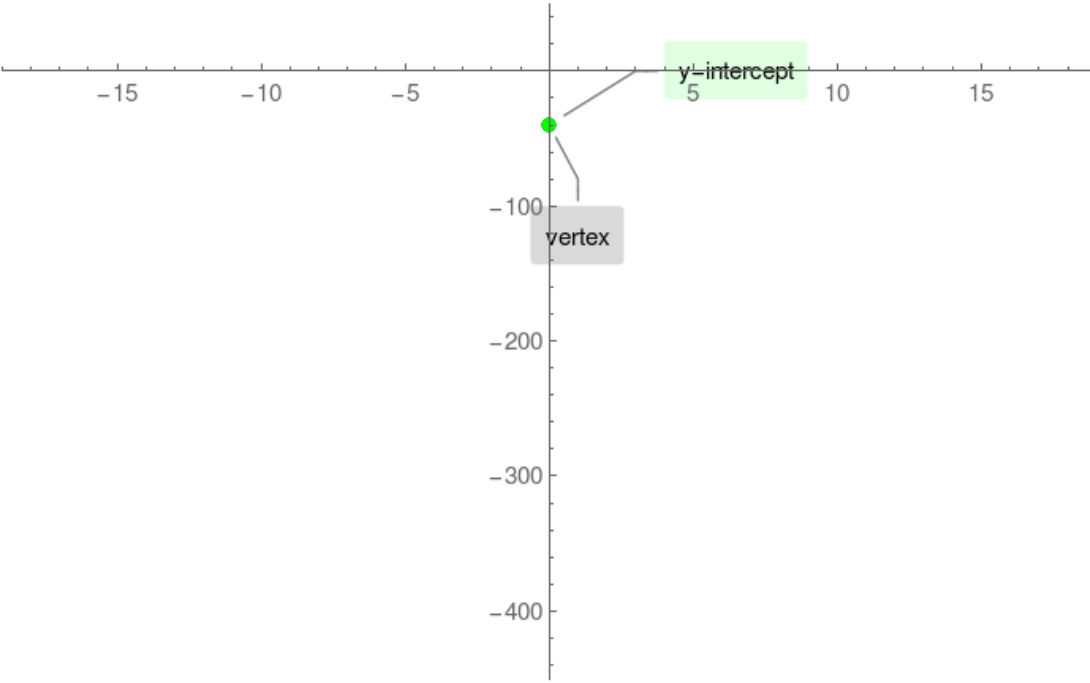
vertex = $(0, -40)$



Step 2.

Compute q-intercept and plot single point:

q-intercept = $(0, -40)$

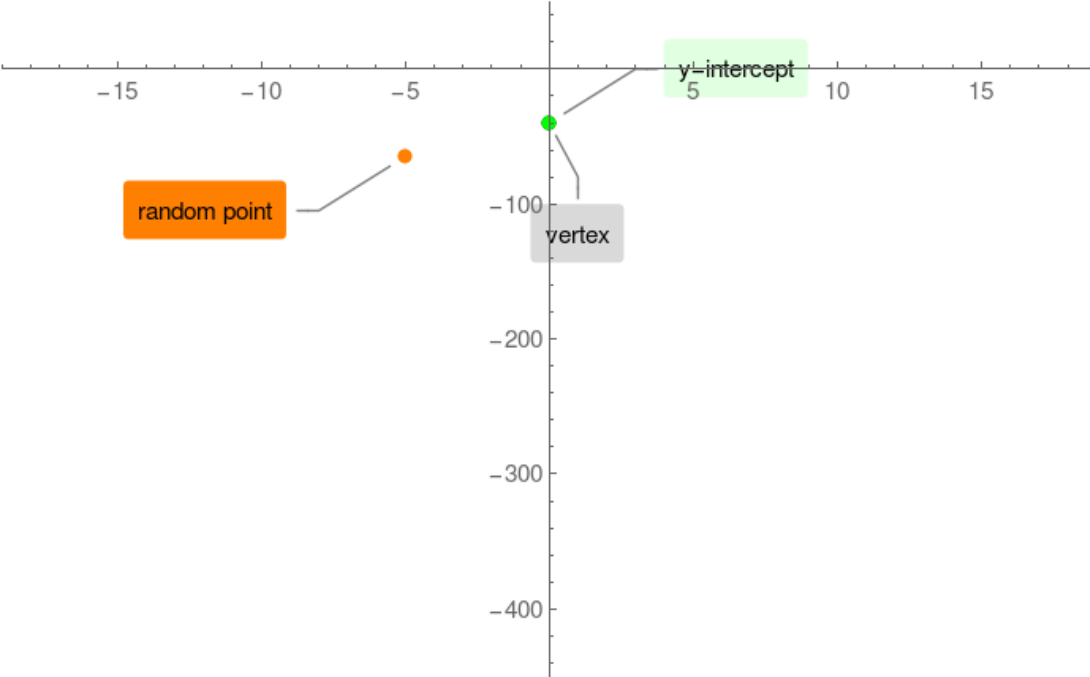


Step 3.

There are no w-intercepts!

Instead compute an arbitrary point on any side of vertex:

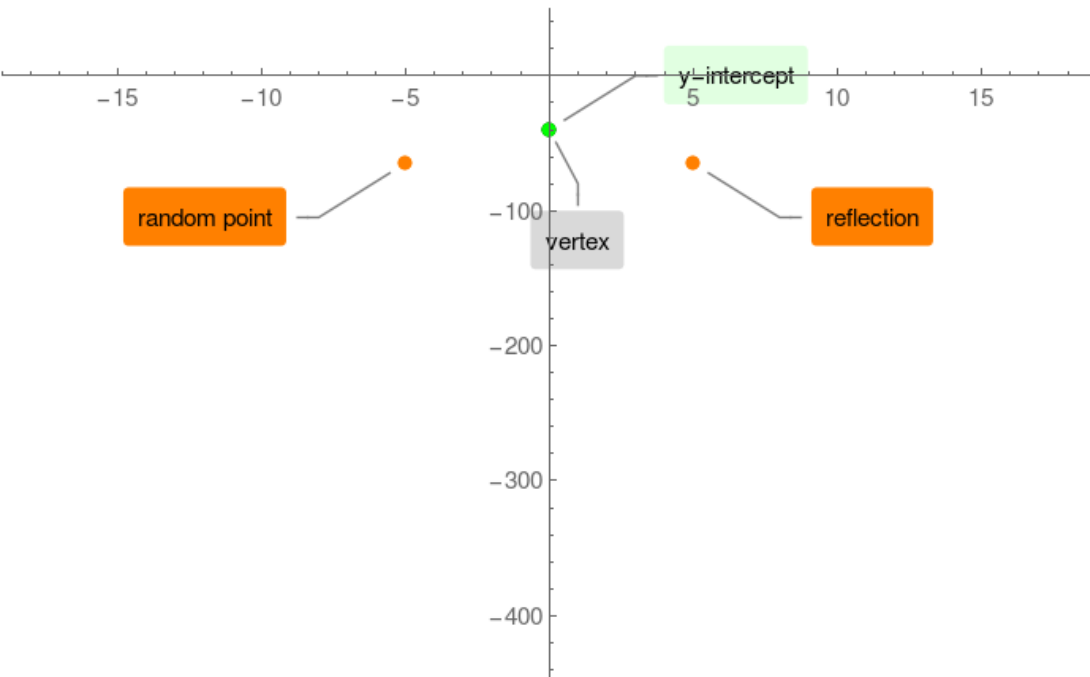
Random point = $(-5, -65)$



Step 4.

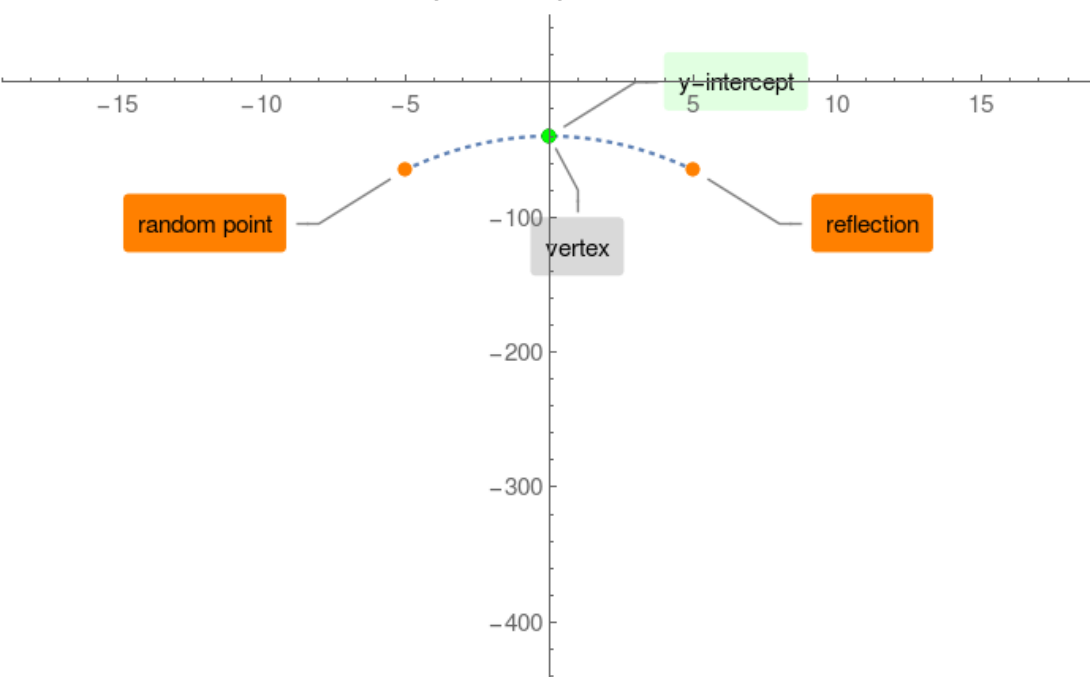
Reflect the point against the vertex's vertical axes:

Reflection = $(5, -65)$



Step 5.

connect the above computed points:



Step 6.

Extend the parabola beyond the range of intercepts

