

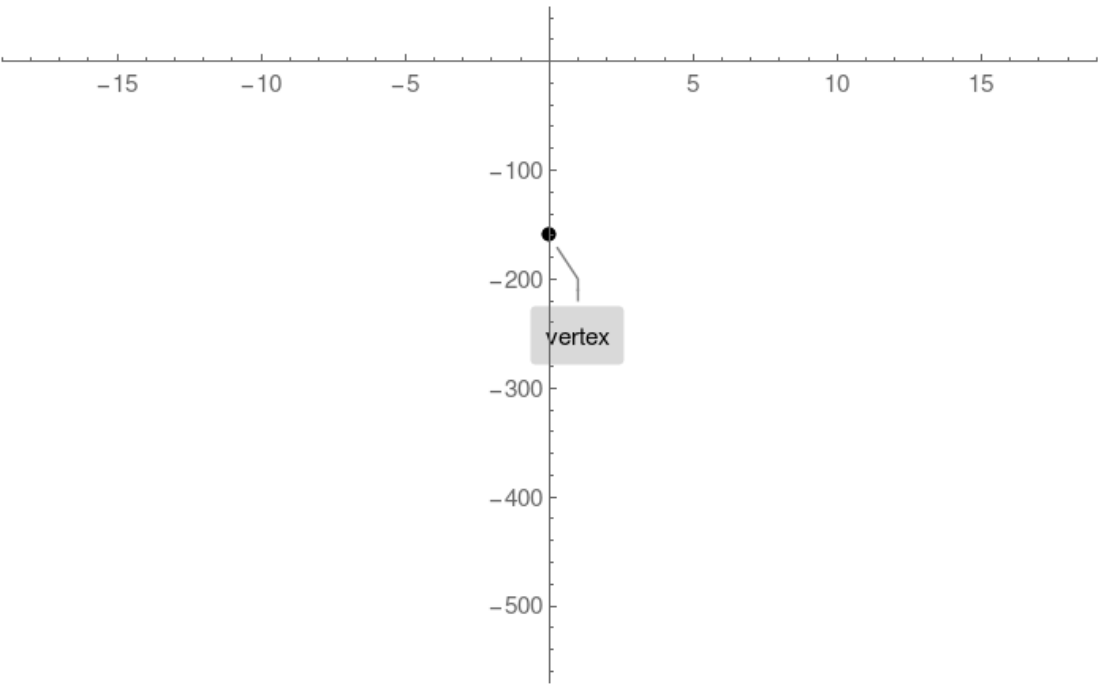
### Example 3. Vertex equal to vertical intercept

Plot  $w(e) = -e^2 - 160$

#### Step 1.

Compute vertex and plot single point:

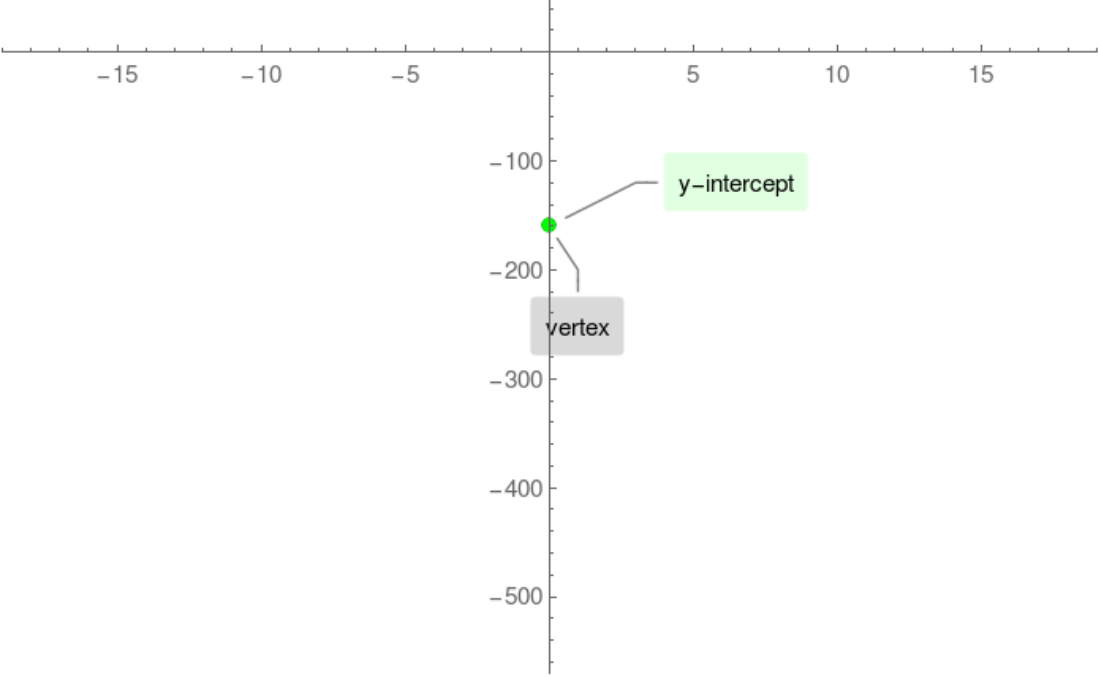
vertex =  $(0, -160)$



#### Step 2.

Compute w-intercept and plot single point:

w-intercept =  $(0, -160)$

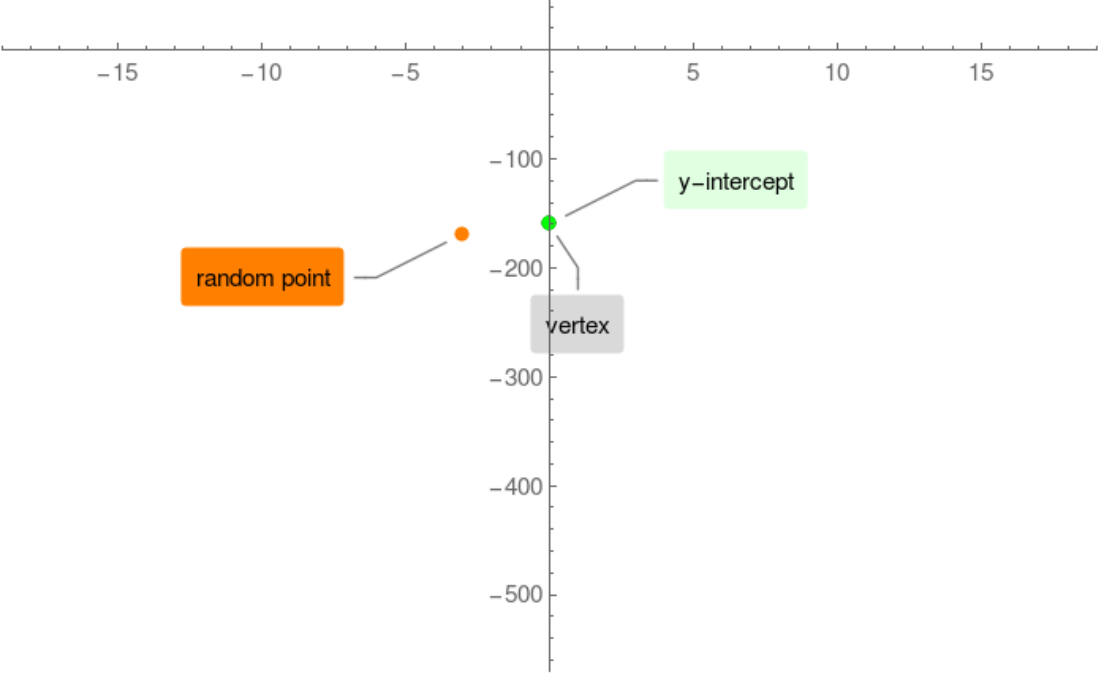


#### Step 3.

There are no e-intercepts!

Instead compute an arbitrary point on any side of vertex:

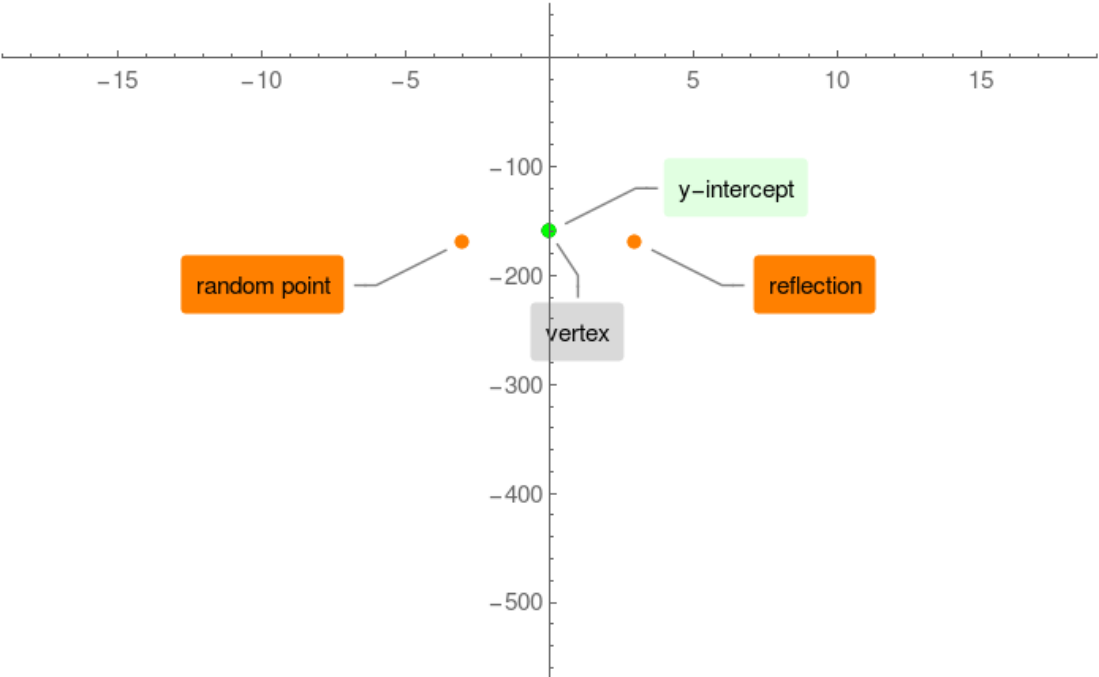
Random point =  $(-3, -169)$



#### Step 4.

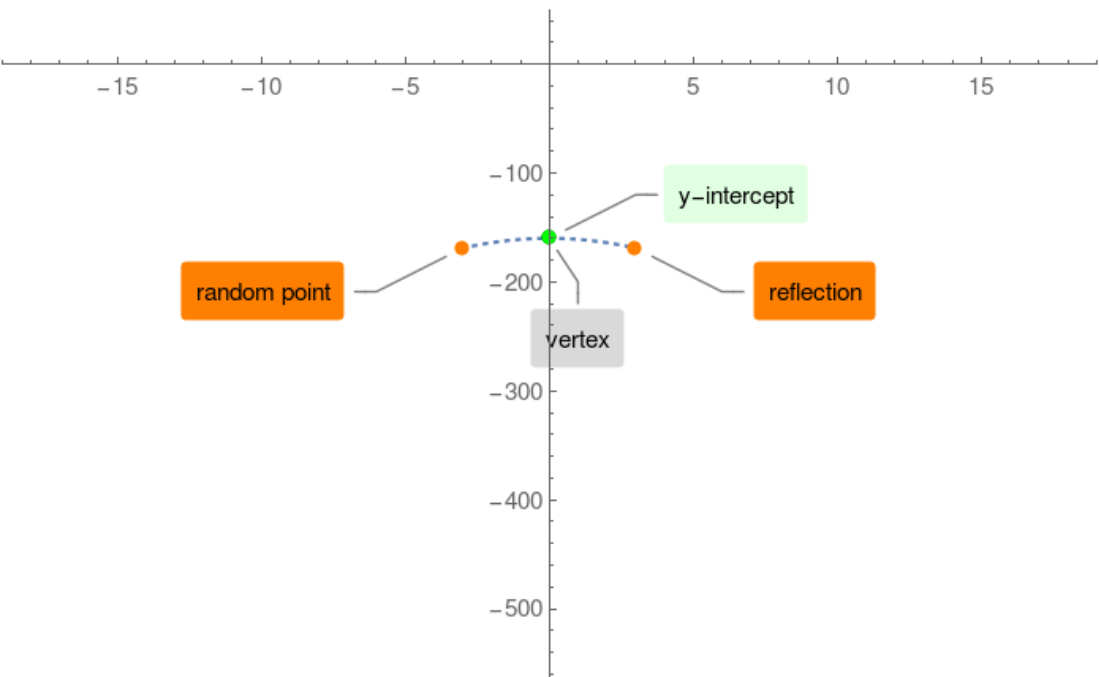
Reflect the point against the vertex's vertical axes:

Reflection =  $(3, -169)$



#### Step 5.

connect the above computed points:



#### Step 6.

Extend the parabola beyond the range of intercepts

