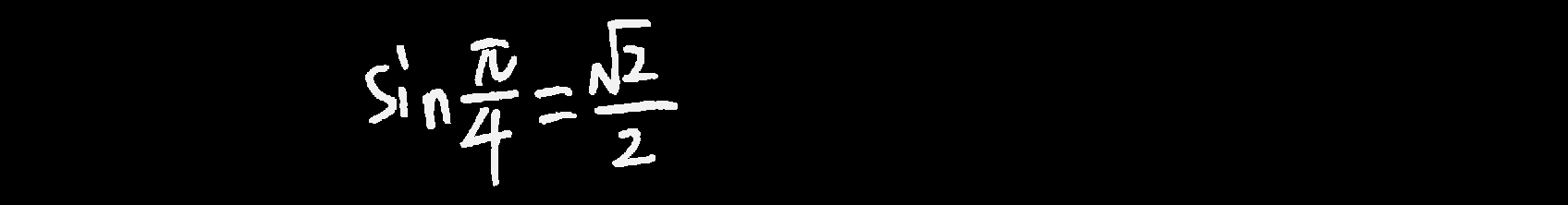
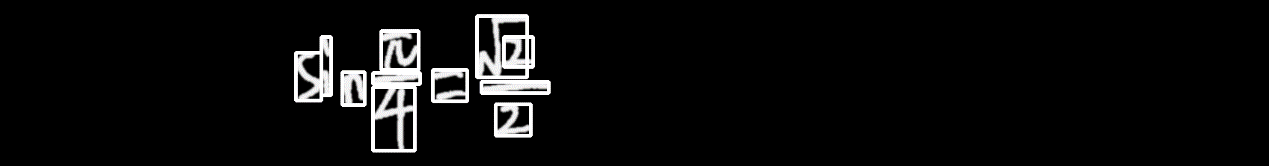
**Report-segmentation:**

Suppose we are testing following image:

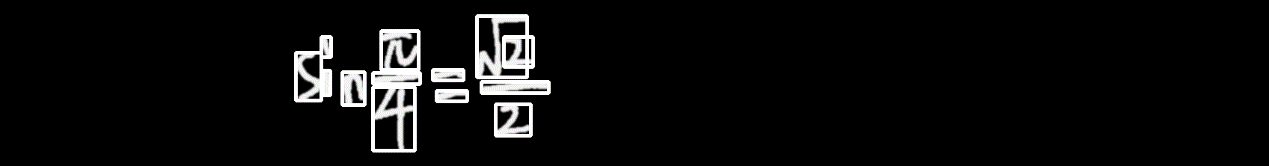


Before applying the model on the image, we need to cut image into pieces of symbol images:



This way, we can recognize every single symbol.

To achieve this, first we call *findCountour()* in *openCV* class. This gives us a list of contours. Using this list, we cut image pieces from the image. Now we have:



Here are two problems:

1. Symbols having separate parts won’t be recognized, like “i” and “=”.
2. For single image piece that is cut out, we may have something we don’t want, like:



while we need “sqrt” only.

To solve problem 2: we used label() to convert each continue shape into single digits. Since there is only 1 such digit appearing on all four edges of the image piece, we can find it and keep it only. This way, we can erase “2” and have:



To solve problem 1: we check if the image piece is bar-shaped. If so, we conjugate if with other bar pieces. If they mostly overlap horizontally, we combine them. This way, we have:

 and 