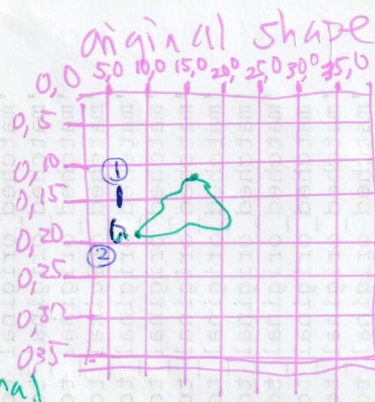
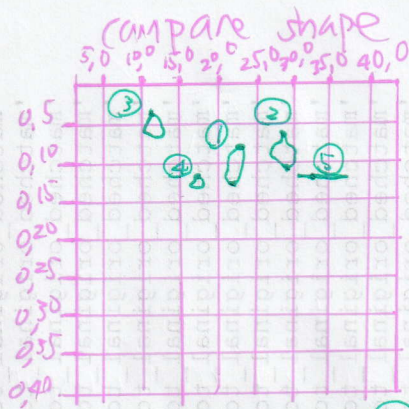


find_direct_neighbors



original
 smallest $y = 12$
 largest $y = 18$
 smallest $x = 9$
 largest $x = 21$



① smallest $y = 8$ largest $y = 13$
 ② smallest $y = 7$ largest $y = 11$
 ③ smallest $y = 3$ largest $y = 7$

compare shape is
 above original shape.

orig- $y_{\text{smallest}} > \text{comp-smallest-}y$

comp-largest y has to be greater than or equal to orig-smallest- y
 to be candidate for original shape's neighbor.

~~comp-smallest- y~~ ④ smallest- $y = 12$ largest- $y = 13$
 ⑤ smallest- $y = 12$ largest- $y = 12$
 (orig-neighbor-top = orig-smallest- $y - 1$)

~~orig-smallest- $y > \text{comp-orig-neighbor-top}$~~

If $\text{comp-smallest-}y \leq \text{orig-smallest-}y$:

If $\text{comp-largest-}y \geq \text{orig-smallest-}y$ orig-neighbor-top
 # compare shape is a candidate may be original shape's
 neighbor.

① smallest $x = 21$ largest $x = 23$

② smallest $x = 27$ largest $x = 30$

③ smallest $x = 10$ largest $x = 13$

④ smallest $x = 16$ largest $x = 17$

⑤ smallest $x = 31$ largest $x = 37$

① smallest $y = 13$ largest $y = 16$
 smallest $x = 6$ largest $x = 6$

② smallest $y = 17$ largest $y = 20$
 smallest $x = 5$ largest $x = 17$