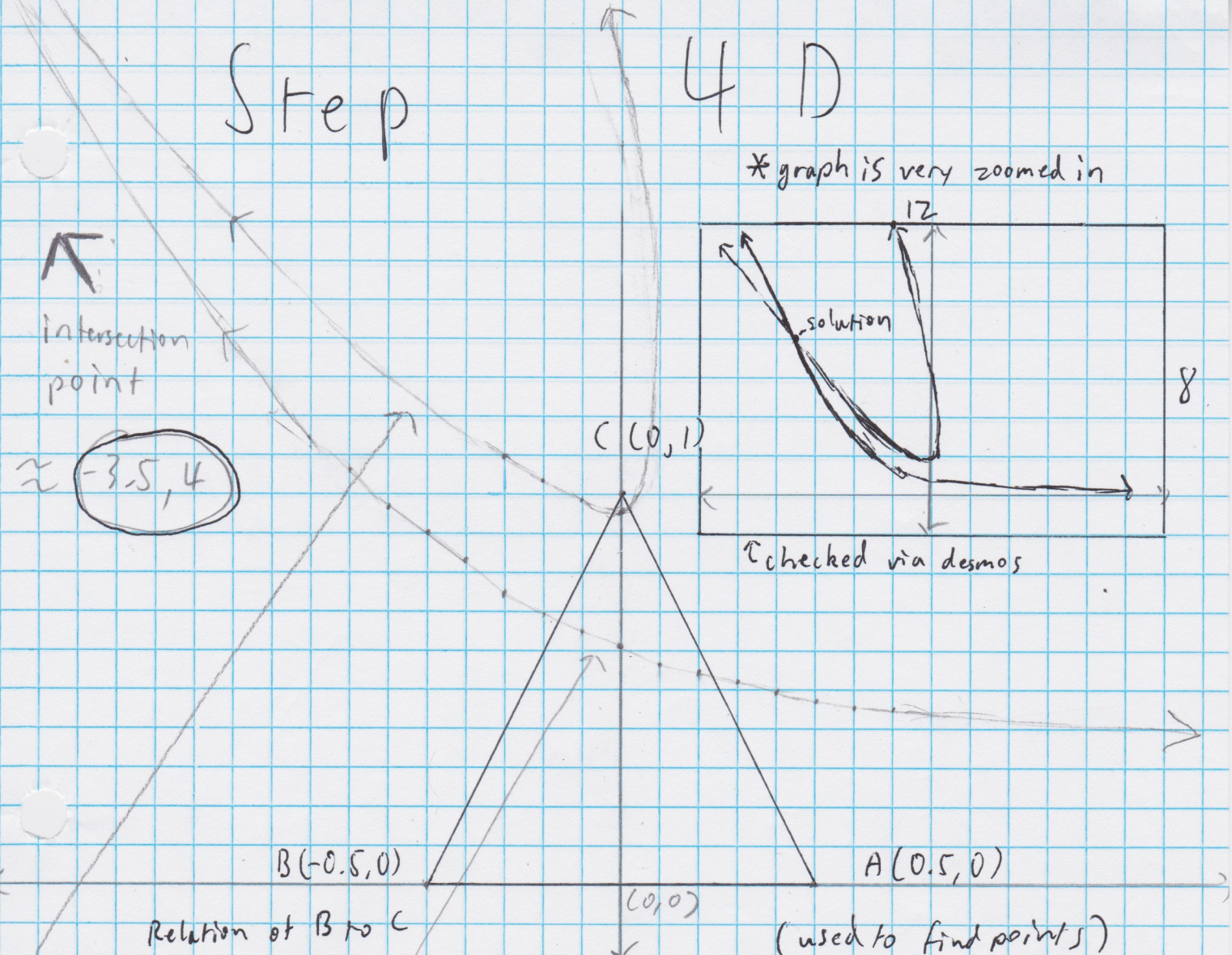
# Step 4D




*graph is very zoomed in




↑ checked via desmos

Relation of B to C (used to find points)

$$\sqrt{(x+0.5)^2+y^2}-\sqrt{x^2+(y-1)^2}\approx 0.3902 \Rightarrow x+2y-0.902256=(0.7804)\sqrt{x^2+(y-1)^2}$$

$$\sqrt{(x-0.5)^2+y^2}-\sqrt{x^2+(y-1)^2}\approx 1.047 \Rightarrow -x-2y-1.846209=(2.094)\sqrt{x^2+(y-1)^2}$$

Relation of A to C

$x=-3.5 \quad y=4$

CI brute forced w/ estimation & binary search (1-6)

Rel B to C: $-3.5+2y-0.90225=(0.7804)\sqrt{-3.5^2+(y-1)^2}$

$(2y-4.402256)^2=(0.7804)^2(12.25+y^2-2y+1)$

$4y^2-(2)(4.40225)y+(4.40225)^2=7.4605+0.6090y^2-0.6090y+0.6090$

$3.391y^2-8.1954y+18.7704=0$

This is an example of; my scratch work is incoherent and full of algebraic attempts. In the end I took the equations, graphed it, and brute forced (binary searched the area. However, I solved it algebraically in the extra credit (collaboration was allowed)