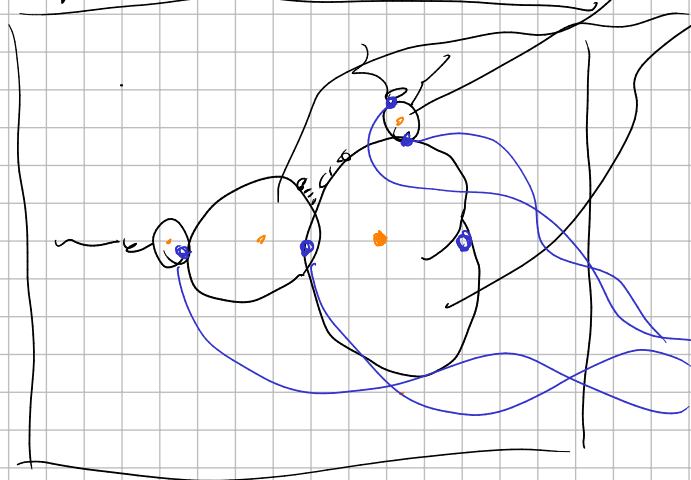


SHP Chaos and Fractals 3-20

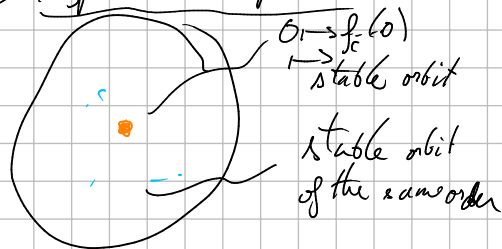
Next few weeks: Renormalization: a relation between systems at different length/energy scales

Renormalization (in a slightly different context) governs the self-similarity of the mandelbrot set & other fractal bifurcation phase transitions

Recall facts about the mandelbrot set



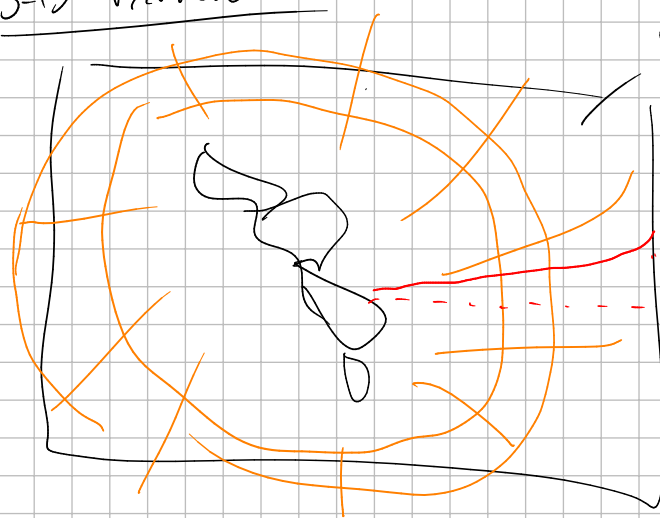
Hyperbolic components



Parabolic points

c - c st. f_c has a parabolic orbit
 (2)
 $\text{fix pt of } f_c^n \quad \lambda^n = 1$
 $f_c^n \sim \lambda_2^n (1 + \dots)$

3-13 Problem 2



The outside of $\mathbb{C} \setminus J_F$ is conformally equivalent to $D = \{z \mid |z| < 1\} = \bigcirc$

