Please do this homework on separate paper, not on this handout.

For each of the following seeds s,

(a) Find the first 7 terms of the Mandelbrot sequence with seed s (including 0).

   (Recall: The Mandelbrot sequence is just the list of results (real or complex numbers) you get when you've started with a seed. The first element in the sequence is 0, the second will always be the seed.

(b) On graph paper, plot six points in the orbit of s (that is, ignoring that first 0 term, convert the numbers in the Mandelbrot sequence for that seed to points, and plot them).

   Unless you fill the whole page with your graph, and use different colors for each orbit, you should have each orbit in a separate graph.

(c) Is this Mandelbrot sequence *escaping, periodic,* or *attracted*? (If 6 terms is not enough for you to be able to judge, find more.)

(d) Is the seed in the Mandelbrot set?

(e) Should we color the seed black or not-black?

1. $s = (-1, 0)$

2. $s = (-2, 0)$

3. $s = (-.25, 0)$

4. $s = (0, -1)$

5. $s = (0, 0.5)$

6. $s = (1, 1)$