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Joshua J Clemons* (jclemons@vt.edu), Mathematics Department, 460 McBryde Hall, Blacksburg, VA 24061-0123. *An exploration of Mandelbrot sets in unexpected places.* Preliminary report.

The Mandelbrot set is defined to be the set $\{c : p_c^n(0) \text{ is bounded}\}$ where $p_c(z) = z^2 + c$. Douady and Hubbard's work proved that by showing a parameterized family of maps is quadratic like for a sufficient set of parameters one can conclude that the parameter space of that family of maps contains a homeomorphic copy of the Mandelbrot set described above. By looking at different quadratic families, we will see some strikingly beautiful parameter planes and be able to conclude that many of the structures that look like Mandelbrot sets are indeed what they appear to be. Lastly, we will analyze the amount of distortion of the Mandelbrot sets (from the original) in these unexpected locations. (Received September 26, 2017)