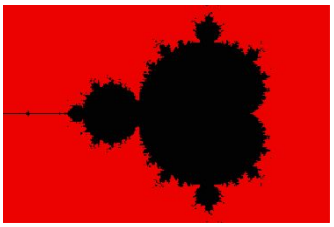

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Making Mandelbrot's Masterpiece

Project Goal:
You and our students are going to draw the Mandelbrot set using Scratch!

Students will break down the complex Mandelbrot set into manageable pieces and use the algorithm they created in the Mandelbrot Magnitudes lesson to test thousands of points in the complex plane.

Standards:
CCSS.MATH.CONTENT.HSN.CN.A.1

Know there is a complex number *i* such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.

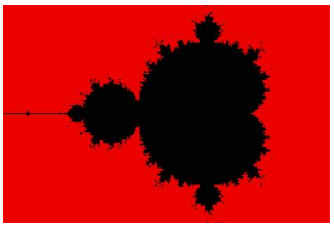
CCSS.MATH.CONTENT.HSN.CN.A.2

Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

Student Guide

#CSandMath

@BoundsofoutMath & @ashleyanntewes



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Teacher Guide:
This lesson will take about one 60 minute class period. It is best if students work in pairs, one with the student guide open and the other modifying the code from the previous lesson (Mandelbrot Magnitudes). There are a handful of GIFs for the tricky steps, so printed handouts will be difficult.

Solutions:

Final Code after challenge 1