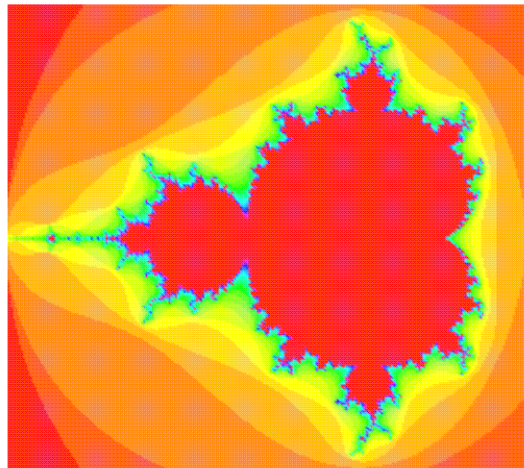# The Mandelbrot Set

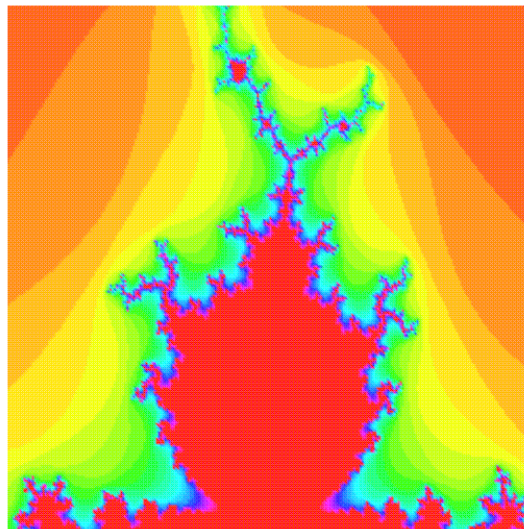John Oprea, oprea@math.csuohio.edu

```
> mandelbrot := proc(x, y)
    local c, z, m;
    c := evalf(x+y*I);
    z := c;
     for m to 30 while abs(z) < 2 do
         z := z^2+c
     od;
     m;
  end:
> plot3d( 0, -2..0.7, -1.2..1.2,
          orientation=[-90,0], grid=[250, 250],
          style=patchnogrid, color=mandelbrot );
```



```
>
```

```
> plot3d( 0, -0.418617..0.163807, 0.636694..1.087838,
         orientation=[-90,0], grid=[250, 250],
         style=patchnogrid, color=mandelbrot );
```



```
>
```