

```

num_instances = 100000;

x = randi(255,[num_instances 3]);

R = x(:,1);
G = x(:,2);
B = x(:,3);

num_iterations = 30;
object_counter = 0;

iterator = 1;

A = 100000;

while(iterator <= num_iterations) %iterates through values of A

A = A + 1;

counter = 0;

for i = 1 : 5

    for j = 1 : 5

        for k = 1 : 5

            Z = R.^i + G.^j + B.^k;
            a = find(Z == A);

            if(isempty(a) == 0)

                counter = counter + 1;

                index = a(1);

                point_data(counter,:) = [i j k]; %this is the coordinate
                color_data(counter,:) = [R(index) G(index) B(index)];

            endif

        endfor

    endfor

endfor

endfor

```

```
if(counter > 0)

    object_counter = object_counter + 1;
    shape_array{object_counter} = point_data;
    color_array{object_counter} = color_data;
    [object_counter counter]

    num_rows = size(point_data,1);

    X = point_data(:,1);
    Y = point_data(:,2);
    Z = point_data(:,3);
    S = ones(num_rows,1)*20;
    C = color_data/255;
    figure, scatter3(X,Y,Z,S,C,'filled')

    xlim([.5*min(X) 1.5*max(X)])
    ylim([.5*min(Y) 1.5*max(Y)])
    zlim([.5*min(Z) 1.5*max(Z)])

    daspect([1 1 1])

    view(30,30)

endif

iterator = iterator + 1;

endwhile
```