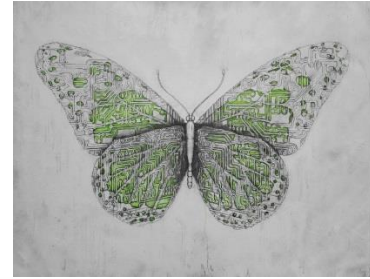


# Chaos Applet

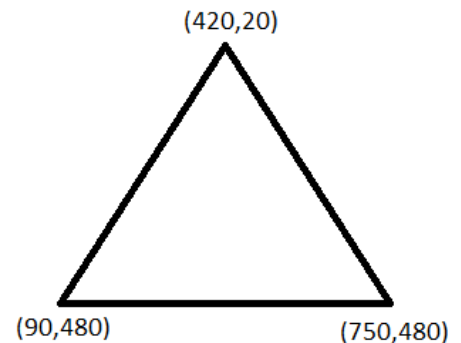
The internet says “chaos theory is an area of deterministic dynamics proposing that seemingly random events can result from normal equations because of the complexity of the systems involved.”

In this applet we will apply chaos theory – using 3 points of a triangle and a random number, we will generate a picture.



Choose three corners of a triangle - fairly spread out. Number them 1 to 3 in the code.

```
int x1 =  
int y1 =  
int x2 =  
int y2 =  
int x3 =  
int y3 =
```



Randomly select a point on the screen. (x,y)

```
int ptx = (int) (Math.random()*600+1);  
int pty = (int) (Math.random()*500+1);
```

Loop this part MANY times.

Choose a random number from 1 to 3. Based on which number you get, plot a point halfway between the random point on the screen and that corner of the triangle. Make the random point take on the value of the midpoint.

```
int pt = (int) (Math.random()*3+1);  
if(pt==1) {  
    //find the x value midway between the random ptx and x1  
    int midx = (x1 + ptx) / 2;  
    //find the y value midway between the random pty and y1  
    int midy = (y1 + pty) / 2;  
    //make a 1 pixel oval at the midpoint  
    g.fillOval(midx, midy, 1, 1);  
    //the random pt's x will become the midpoint's x  
    ptx = midx;  
    //the random pt's y will become the midpoint's x  
    pty = midy;  
} else if (pt==2) {  
    //do the same, but for pt 2  
} else {  
    //do the same, but for pt 3  
}
```

It is more interesting if you put a delay in between the plotting of the points. They you can see the shape appear.

```
for(int i=0; i<5000000; i++); //Waste time
```

If you follow these steps, something cool happens. If it didn't happen, you didn't do it right. Try again.