

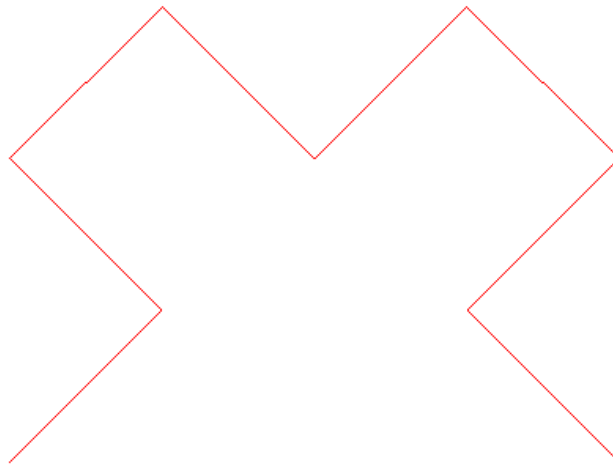
Construction of Intuition's Paradoxes : Peano Geometric Curves

(Peano curve)

```
> basic := proc(p1,p2,p3)
local dx,dy,p4,p5,p6,p7,p8,p9;
p4 := .5*(p1+p2);
p9 := .5*(p2+p3);
p5 := p4+(p2-p9);
p6 := p2+(p2-p9);
p7 := p2+(p4-p1);
p8 := p9+(p4-p1);
p4,p5,p6, p2 ,p7,p8,p9, p3 ;
end:
> peano := proc(f1)
local i,cur;
cur := [f1[1] ] ;
for i from 1 by 2 to nops(f1)-2 do
cur := [op(cur),basic( f1[i],f1[i+1],f1[i+2] )]
od;
> end:
> f1 := [[0,0],[1,1],[2,0]]:
> for i from 1 to 1 do f1 := peano(f1) od:
ti := cat(1,`th stage of Peano's curve`);
plot(f1,style=LINE,axes=NONE,title=ti,
scaling=CONSTRAINED);
```

ti := 1th stage of Peano's curve

1th stage of Peano's curve



```
> restart;
```

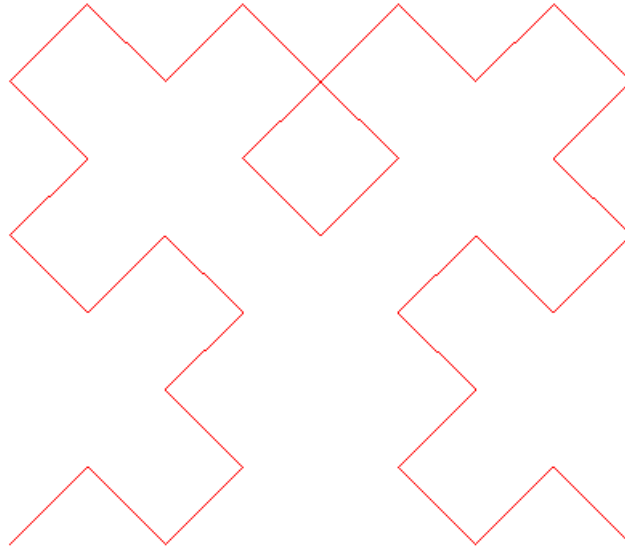
```
>
```

```
>> for i from 1 to 2 do f1 := peano(f1) od:
ti := cat(2,`th stage of Peano's curve`);
```

```
plot(f1,style=LINE,axes=NONE,title=ti,  
scaling=CONSTRAINED);
```

ti := 2th stage of Peano's curve

2th stage of Peano's curve

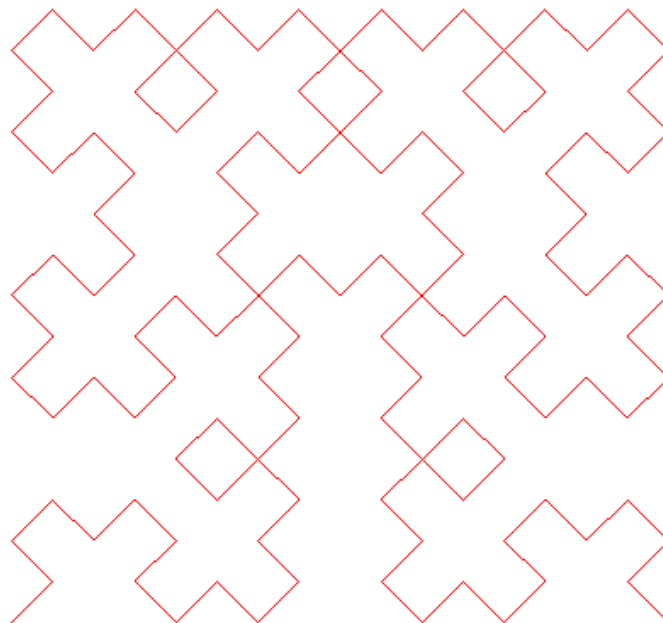


```
> restart;
```

```
>> for i from 1 to 3 do f1 := peano(f1) od:  
ti := cat(3,`th stage of Peano's curve`);  
plot(f1,style=LINE,axes=NONE,title=ti,  
scaling=CONSTRAINED);
```

ti := 3th stage of Peano's curve

3th stage of Peano's curve



```
> restart;
```

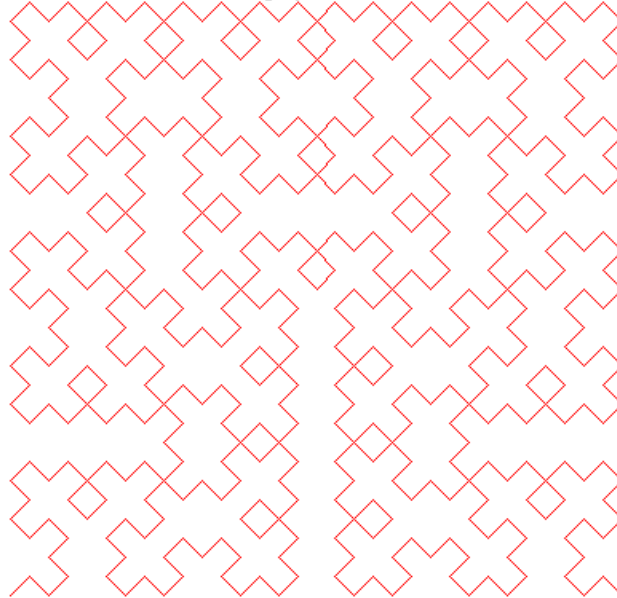
```
> f1 := [[0,0],[1,1],[2,0]]:
```

```
>> for i from 1 to 4 do f1 := peano(f1) od:
```

```
ti := cat(4, `th stage of Peano's curve`);  
plot(fl, style=LINE, axes=NONE, title=ti,  
scaling=CONSTRAINED);
```

ti := 4th stage of Peano's curve

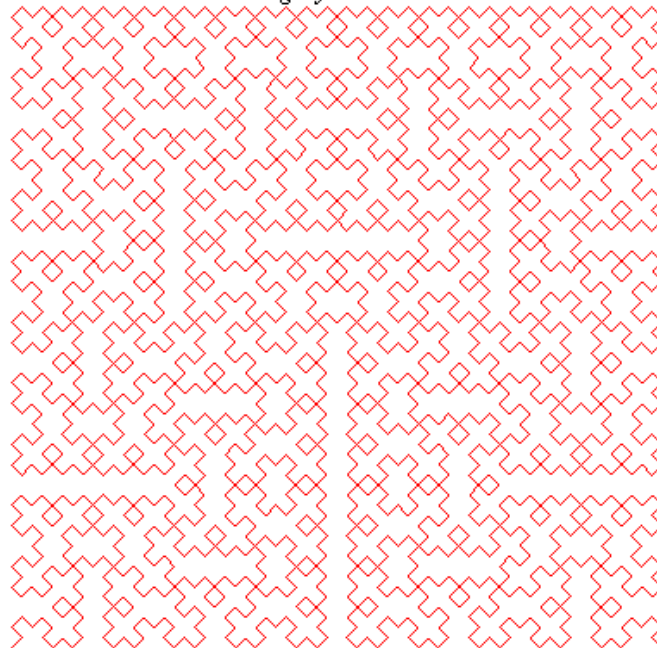
4th stage of Peano's curve



```
> restart;  
>> for i from 1 to 5 do fl := peano(fl) od:  
ti := cat(5, `th stage of Peano's curve`);  
plot(fl, style=LINE, axes=NONE, title=ti,  
scaling=CONSTRAINED);
```

ti := 5th stage of Peano's curve

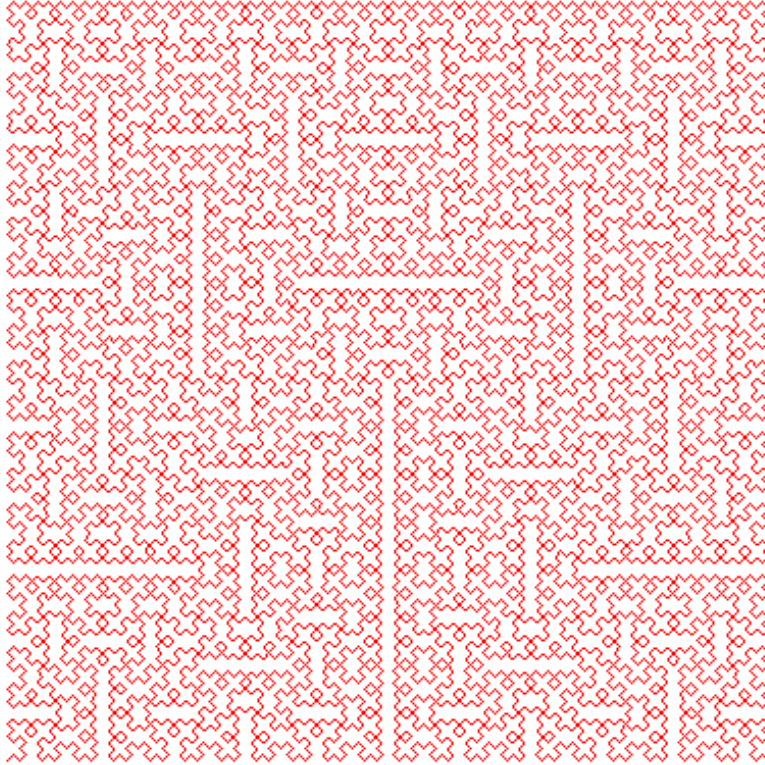
5th stage of Peano's curve



```
> restart;  
>
```

```
>> for i from 1 to 6 do fl := peano(fl) od:  
ti := cat(6, `th stage of Peano's curve`);  
plot(fl, style=LINE, axes=NONE, title=ti,  
scaling=CONSTRAINED);
```

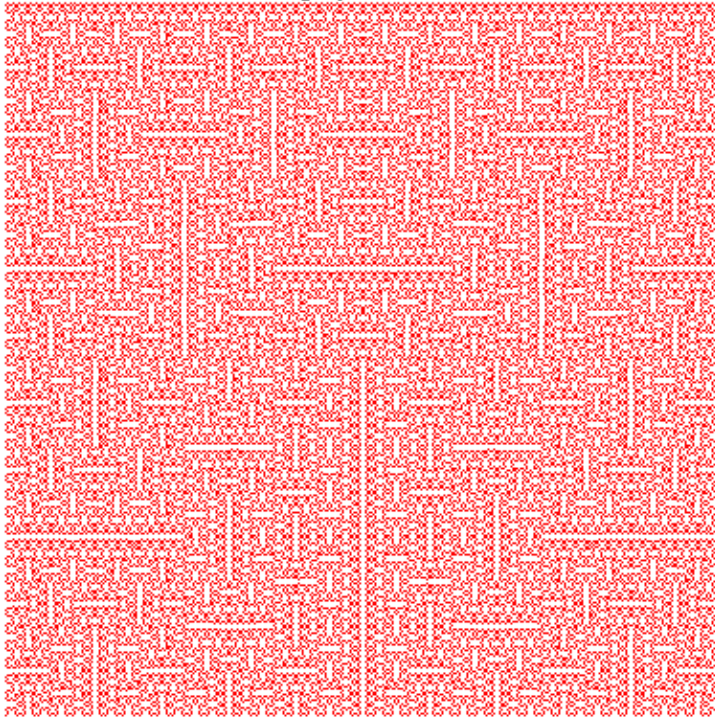
6th stage of Peano's curve



```
>> for i from 1 to 7 do fl := peano(fl) od:  
ti := cat(7, `th stage of Peano's curve`);  
plot(fl, style=LINE, axes=NONE, title=ti,  
scaling=CONSTRAINED);
```

ti := 7th stage of Peano's curve

7th stage of Peano's curve



```
>> for i from 1 to 8 do fl := peano(fl) od:  
ti := cat(8, `th stage of Peano's curve`);  
plot(fl, style=LINE, axes=NONE, title=ti,  
scaling=CONSTRAINED);
```

ti := 8th stage of Peano's curve

8th stage of Peano's curve

