

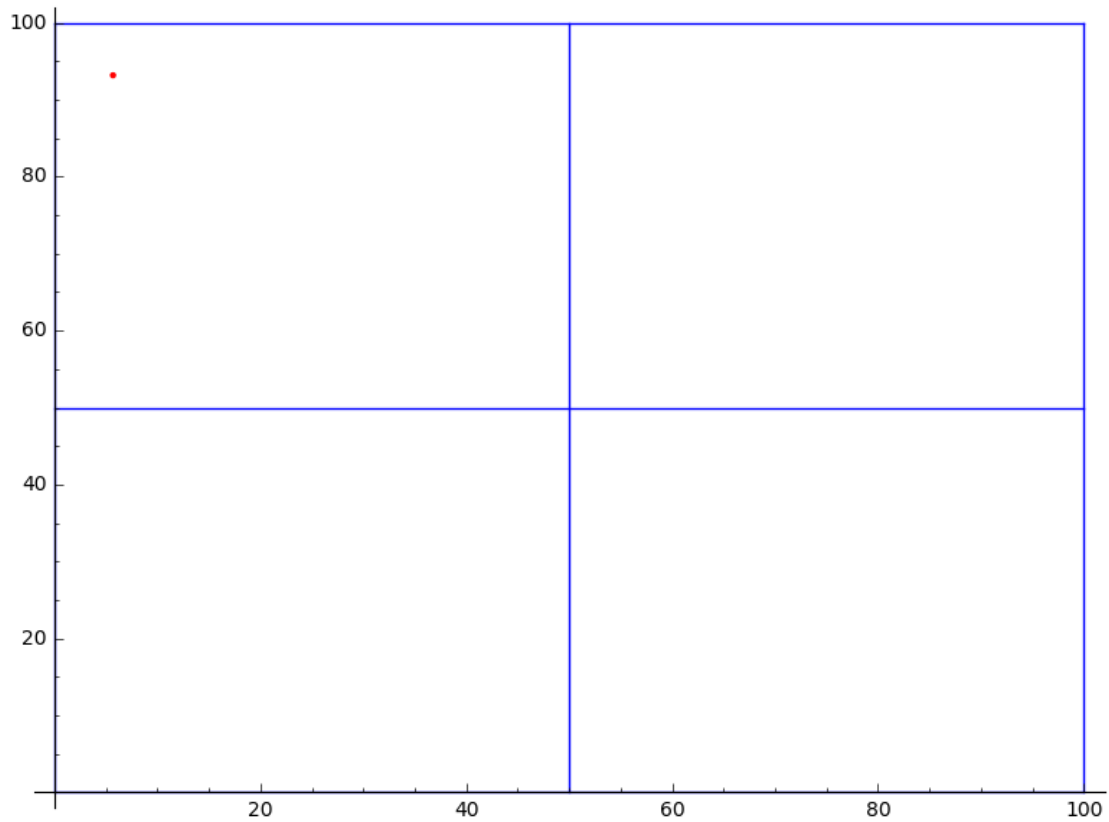
# Particle detection

November 9, 2019

```
In [1]: from sage.misc.prandom import randrange
        from sage.misc.randstate import current_randstate
        (x,y)=100*random(),100*random()
        x,y
```

```
Out[1]: (5.692945553088813, 93.1727428633184)
```

```
In [2]: x1=0
        y1=0
        x2=100
        y2=100
        a1=((x1+x2)/2,y1)
        a2=(x2,(y1+y2)/2)
        a3=((x2+x1)/2,y2)
        a4=(x1,(y2+y1)/2)
        a5=((x1+x2)/2,(y1+y2)/2)
        a5
        p=line([a1,a3])+line([a2,a4])+point([x,y],color='red',pointsiz=10)+line([(0,0),(100,0)])
        p.show()
```



```
In [3]: print(x,y)
        for i in range(6):
            if(x>a5[0]):
                x1=a5[0]
                if(y>a5[1]):
                    y1=a5[1]
                else:
                    y2=a5[1]
            else:
                x2=a5[0]
                if(y>a5[1]):
                    y1=a5[1]
                else:
                    y2=a5[1]
            a1=((x1+x2)/2,y1)
            a2=(x2,(y1+y2)/2)
            a3=((x2+x1)/2,y2)
            a4=(x1,(y2+y1)/2)
            p=p+line([a1,a3])+line([a2,a4])+point([a5],color='green',pointsize=10)
            a5=((x1+x2)/2,(y1+y2)/2)
        print(x1,x2,y1,y2)
```

(5.692945553088813, 93.1727428633184)  
(75/16, 25/4, 1475/16, 375/4)

In [4]: p.show()

