(1 + x1)^2 + (2 − x2)^2 = 4

makes a circle(-1, 2) with r=2 x1 = -1 + 2cos(theta) x2 = 2 + 2sin(theta)

(1 + x1)^2 + (2 − x2)^2 > 4

x1 > -1 + 2cos(theta) x2 > 2 + 2sin(theta) x1=(-∞,-3)U(1,∞) x2=(-∞,-2)U(2,∞)

(1 + x1)^2 + (2 − x2)^2 <= 4

x1 <= -1 + 2cos(theta) x2 <= 2 + 2sin(theta) x1=(-1,1) x2=(-2,2)

```
import numpy as np
import matplotlib.pyplot as plt

theta = np.linspace(0, 2*np.pi, 100)

radius = 2

a = -1 + radius*np.cos(theta)
b = 2 + radius*np.sin(theta)

figure, axes = plt.subplots(1)
plt.text(-1.5, 2, "<= 4", fontdict={'color':'black', 'size':12})
plt.text(2, 4.5, "> 4", fontdict={'color':'black', 'size':12})
plt.scatter([0, -1, 2, 3], [0, 1, 2, 8], c=['b', 'r', 'b', 'b'])

axes.plot(a, b)
axes.set_aspect(1)

plt.title('(1 + x1)^2 + (2 - x2)^2 = 4')
plt.show()
```