Proof for point inside the circle:

P=(5,5)

C=(4,4)

dPC2=(x1−x2)2+(y1−y2)2d\_{PC}^2 = (x\_1 - x\_2)^2 + (y\_1 - y\_2)^2

dPC2=(5−4)2+(5−4)2d\_{PC}^2 = (5 - 4)^2 + (5 - 4)^2

dPC2=12+12d\_{PC}^2 = 1^2 + 1^2

dPC2=1+1=2d\_{PC}^2 = 1 + 1 = 2

2< 9, so the point is inside the circle.

A screenshot of a computer

Description automatically generated

Proof for point outside the circle

P=(0, 0)

C= (1, 2)

R=2

dPC2=(x1−x2)2+(y1−y2)2d\_{PC}^2 = (x\_1 - x\_2)^2 + (y\_1 - y\_2)^2

dPC2=(0−1)2+(0−2)2d\_{PC}^2 = (0 - 1)^2 + (0 - 2)^2

(0−1)2=(−1)2=1(0 - 1)^2 = (-1)^2 = 1

(0−2)2=(−2)2=4(0 - 2)^2 = (-2)^2 = 4

dPC2=1+4=5d\_{PC}^2 = 1 + 4 = 5

5>4 so point outside the circleA screenshot of a computer

Description automatically generated