# Circle Geometry

The equation of a circle is

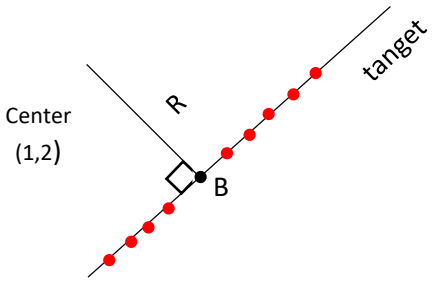
$(x-a)^2 + (y-b)^2 = 12^2$

(a,b) is the center

R is the radius

When the center is (0,0)

$x^2 + y^2 = R^2$




B is a point on the circle

Center o(1,2)

$B(3,1) \Rightarrow a_{oB} = \frac{2-1}{1-3} = -\frac{1}{2}$

Slope of the tanget is a = 2 $\quad 2.\left(-\frac{1}{2}\right) = -1$

(3,1) $\quad a = 2$

The equations of the tanget is

$y - 1 = 2(x-3) \Rightarrow y = 2x - 5$

$\frac{2x-y-5}{\sqrt{5}} = 0$ , $\left|\frac{0-0-5}{\sqrt{5}}\right| = R$

$R = \sqrt{5}$ $\quad R^2 = 5$

$(x-1)^2 + (y-2)^2 = 5$