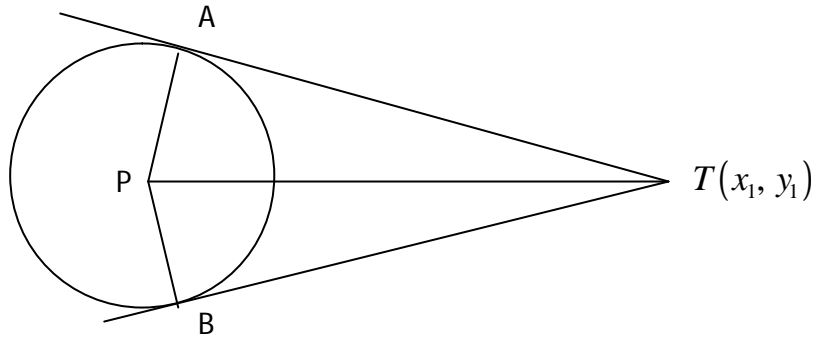


Panjang Garis Singgung Lingkaran



$$L \equiv x^2 + y^2 + Ax + Bx + C = 0$$

Perhatikan gambar!

Lingkaran $L \equiv x^2 + y^2 + Ax + Bx + C = 0$ mempunyai titik pusat $P\left(-\frac{1}{2}A, -\frac{1}{2}B\right)$ dan

jari-jari $r = \sqrt{\frac{1}{4}A^2 + \frac{1}{4}B^2 - C}$, maka

$$\otimes PT = \sqrt{\left(x_1 + \frac{1}{2}A\right)^2 + \left(y_1 + \frac{1}{2}B\right)^2}$$

$$\begin{aligned} \otimes PT^2 = r^2 + AT^2 &\Rightarrow \left(x_1 + \frac{1}{2}A\right)^2 + \left(y_1 + \frac{1}{2}B\right)^2 = \left(\frac{1}{4}A^2 + \frac{1}{4}B^2 - C\right) + AT^2 \\ &\Rightarrow AT^2 = x_1^2 + Ax_1 + \frac{1}{4}A^2 + y_1^2 + By_1 + \frac{1}{4}B^2 - \frac{1}{4}A^2 - \frac{1}{4}B^2 + C \\ &\Rightarrow = x_1^2 + Ax_1 + y_1^2 + By_1 + C \\ &\Rightarrow = x_1^2 + y_1^2 + Ax_1 + By_1 + C \end{aligned}$$

$$\Rightarrow AT = \sqrt{x_1^2 + y_1^2 + Ax_1 + By_1 + C}$$

Catatan:

1. Garis singgung tegak lurus dengan jari-jari lingkaran
2. Panjang $AT =$ Panjang BT