

$$\mathbf{A_P} := \begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$$\mathbf{B_P} := \begin{pmatrix} 10 \\ -1 \end{pmatrix}$$

$$\mathbf{D_P} := \begin{pmatrix} 13 \\ -4 \end{pmatrix}$$

$$\text{BtoC} := 1.5$$

$$\mathbf{R_1} := 3$$

$$\text{Dist} := 2 \cdot \mathbf{R_1}$$

$$\text{Dist} = 6.0000$$

$$\text{AtoC} := \left[\left(\mathbf{B_{P_0}} - \mathbf{A_{P_0}} \right)^2 + \left(\mathbf{A_{P_1}} - \mathbf{B_{P_1}} \right)^2 + \text{BtoC}^2 \right]^{.5}$$

$$\text{AtoC} = 10.1612$$

Guess

$$\mathbf{x} := 10$$

$$\mathbf{y} := 1$$

Given

$$\left(\mathbf{x} - \mathbf{A_{P_0}} \right)^2 + \left(\mathbf{y} - \mathbf{A_{P_1}} \right)^2 = \text{AtoC}^2$$

$$\left(\mathbf{x} - \mathbf{D_{P_0}} \right)^2 + \left(\mathbf{y} - \mathbf{D_{P_1}} \right)^2 = \text{Dist}^2$$

$$\begin{pmatrix} \mathbf{xval} \\ \mathbf{yval} \end{pmatrix} := \text{Find}(\mathbf{x}, \mathbf{y})$$

$$\mathbf{C'} := \begin{pmatrix} \mathbf{xval} \\ \mathbf{yval} \end{pmatrix}$$

$$\mathbf{C'} = \begin{pmatrix} 10.0847 \\ 1.2442 \end{pmatrix}$$

$$\theta := \text{atan} \left(\frac{\mathbf{A_{P_1}} - \mathbf{B_{P_1}}}{\mathbf{B_{P_0}} - \mathbf{A_{P_0}}} \right)$$

$$\mathbf{C_{P_0}} := 1.5 \cdot \sin(\theta) + \mathbf{B_{P_0}} - \mathbf{A_{P_0}}$$

$$\mathbf{C_{P_0}} = 10.1493$$

$$\mathbf{C_{P_1}} := 1.5 \cdot \cos(\theta) + \mathbf{B_{P_1}}$$

$$\mathbf{C_{P_1}} = 0.4926$$

$$\text{CtoC'} := \left[\left(\mathbf{C_{P_0}} - \mathbf{C'0} \right)^2 + \left(\mathbf{C'1} - \mathbf{C_{P_1}} \right)^2 \right]^{0.5}$$

$$\text{CtoC'} = 0.7544$$

$$\beta := \text{asin} \left(\frac{\text{BtoC}}{\text{AtoC}} \right)$$

$$\beta = 8.4890 \text{ deg}$$

$$\lambda := 2 \cdot \text{asin} \left(\frac{\text{CtoC'}}{2 \cdot \text{AtoC}} \right)$$

$$\lambda = 4.2547 \text{ deg}$$

$$\psi := \beta + \lambda$$

$$\psi = 12.7437 \text{ deg}$$