



Los datos son $\alpha = 50^\circ$ y $\beta = 45^\circ$ con $l = 1500$ m. Se pide d .

Por definición de tangente:

$$\operatorname{tg} \alpha = \frac{d}{m} \quad [1]$$

$$\operatorname{tg} \beta = \frac{d}{n} \quad [2]$$

$$\text{Además} \quad l = m + n \quad [3]$$

$$\text{Despejo } m \text{ de [1]} \quad m = \frac{d}{\operatorname{tg} \alpha}$$

$$\text{Despejo } m \text{ de [3]} \quad m = l - n$$

$$\text{Igualo ambas expresiones} \quad l - n = \frac{d}{\operatorname{tg} \alpha} \quad [4]$$

$$\text{Despejo } n \text{ de [2]} \quad n = \frac{d}{\operatorname{tg} \beta}$$

$$\text{Sustituyo } n \text{ en [4]} \quad l - \frac{d}{\operatorname{tg} \beta} = \frac{d}{\operatorname{tg} \alpha}$$

$$\text{Agrupo} \quad l = \frac{d}{\operatorname{tg} \beta} + \frac{d}{\operatorname{tg} \alpha}$$

$$\text{Saco factor común a } d \quad l = d \left(\frac{1}{\operatorname{tg} \beta} + \frac{1}{\operatorname{tg} \alpha} \right) = d \left(\frac{\operatorname{tg} \alpha + \operatorname{tg} \beta}{\operatorname{tg} \alpha \cdot \operatorname{tg} \beta} \right)$$

$$\text{Despejo } d \quad d = l \left(\frac{\operatorname{tg} \alpha \cdot \operatorname{tg} \beta}{\operatorname{tg} \alpha + \operatorname{tg} \beta} \right)$$

$$\text{Sustituyo los datos} \quad d = 1500 \cdot \left(\frac{\operatorname{tg} 50^\circ \cdot \operatorname{tg} 45^\circ}{\operatorname{tg} 50^\circ + \operatorname{tg} 45^\circ} \right) = 815,61 \text{ m}$$