

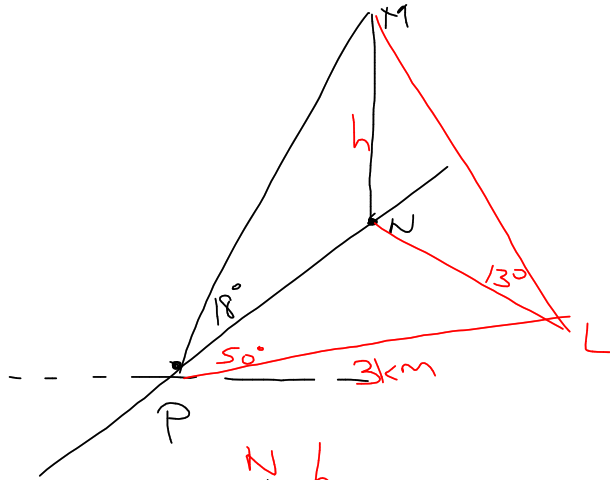
$$\cot 12 = \frac{\sqrt{x^2 + 20^2}}{h}$$

$$h = \frac{\sqrt{x^2 + 20^2}}{\cot 12}$$

$$h^2 = \frac{x^2 + 20^2}{\cot^2 12}$$



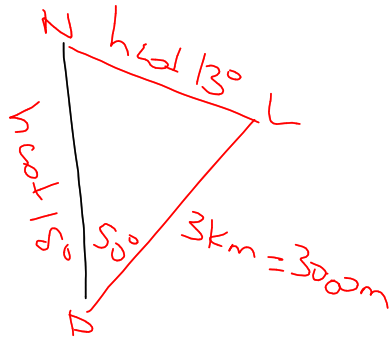
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$$\cot 13^\circ = \frac{NL}{h}$$

$$NL = h \cot 13^\circ$$

$$NP = h \cot 18^\circ$$



$$h^2 \cot^2 13 = h^2 \cot^2 18 + 3000^2 - 2h \cot 18 \times 3000 \cos 50^\circ$$

$$h^2 (\cot^2 13 - \cot^2 18) + (6000 \cot 18 \cos 50^\circ)h - 3000^2 = 0$$

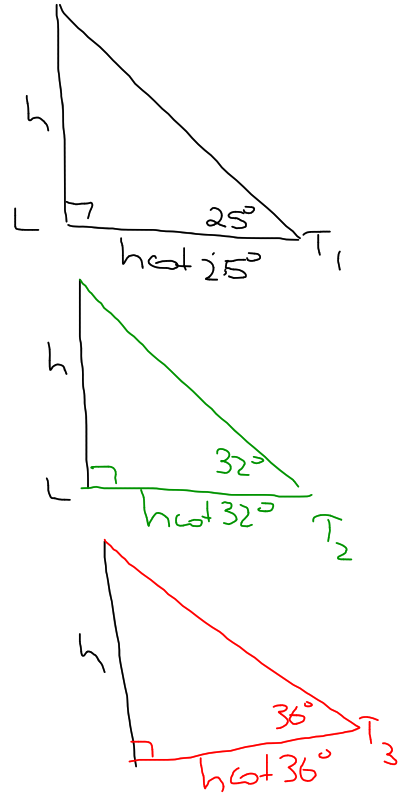
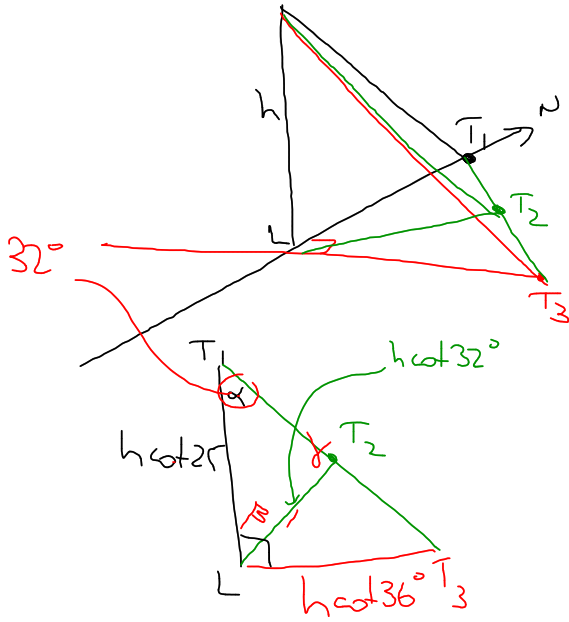

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$$h = \frac{-6000 \cot 18 \cos 50^\circ + \sqrt{6000^2 \cot^2 18 \cos^2 50^\circ + 4(\cot^2 13 - \cot^2 18)3000^2}}{2(\cot^2 13 - \cot^2 18)}$$

$$= 535$$

$$=$$

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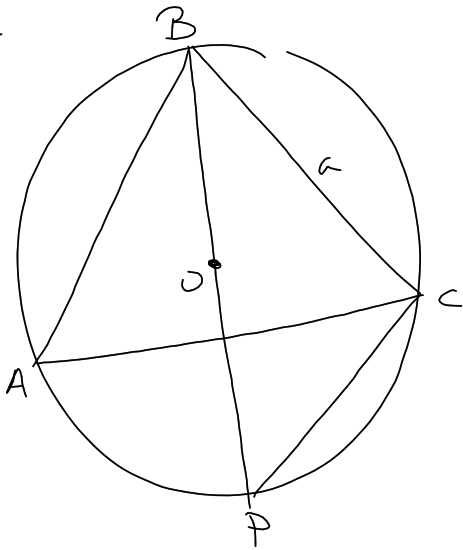
$$\begin{aligned}\tan \alpha &= \frac{h \cot 36^\circ}{h \cot 25^\circ} \\ &= \frac{\cot 36^\circ}{\cot 25^\circ}\end{aligned}$$

$$\begin{aligned}\beta &= 180 - \alpha - \gamma \\ &= 180 - 32 - 46 \\ &= 102 \times \beta \text{ not obtuse.} \\ \therefore \gamma &= 134^\circ\end{aligned}$$

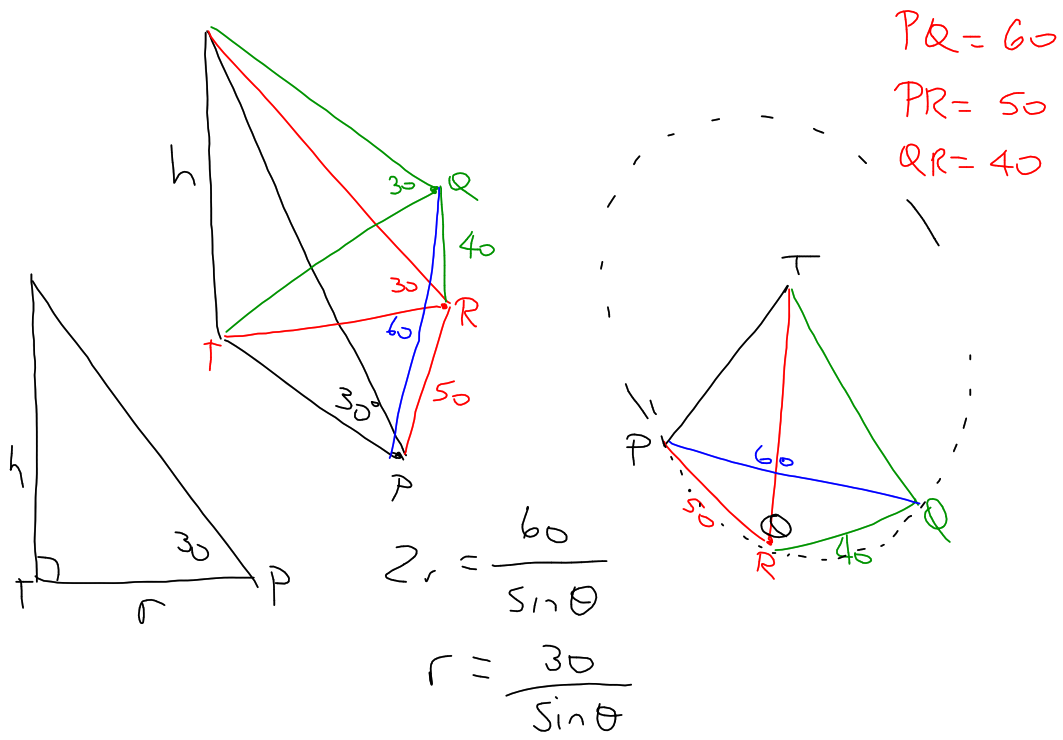
$$\begin{aligned}\beta &= 180 - 32 - 134 \\ &= 14^\circ \\ &= \underline{\underline{\quad}}\end{aligned}$$

$$\begin{aligned}\frac{\sin \gamma}{h \cot 25^\circ} &= \frac{\sin \alpha}{h \cot 32^\circ} \\ \sin \gamma &= \frac{\sin \left( \tan^{-1} \left( \frac{\cot 36^\circ}{\cot 25^\circ} \right) \right) \times \cot 25^\circ}{\cot 32^\circ} \\ &= \frac{\sin \left[ \tan^{-1} \left( \frac{\tan 25^\circ}{\tan 36^\circ} \right) \right] \times \tan 32^\circ}{\tan 25^\circ} \\ \gamma &= 46^\circ 22'\end{aligned}$$

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a)  $BP = \frac{a}{\sin A}$





$$\cos \theta = \frac{4\cancel{\rho}^2 + 5\cancel{\rho}^2 - 6\cancel{\rho}^2}{2 \times 4\cancel{\rho} \times 5\cancel{\rho}}$$

$$= \frac{1}{8}$$

$$\therefore \sin \theta = \frac{\sqrt{63}}{8}$$

$$r = \frac{30 \times 8}{\sqrt{63}}$$

$$= \frac{240}{\sqrt{63}}$$

$$\frac{h}{r} = \tan 30^\circ$$

$$h = r \tan 30^\circ$$

$$= \frac{240}{3\sqrt{21}}$$

$$= \frac{80}{\sqrt{21}}$$