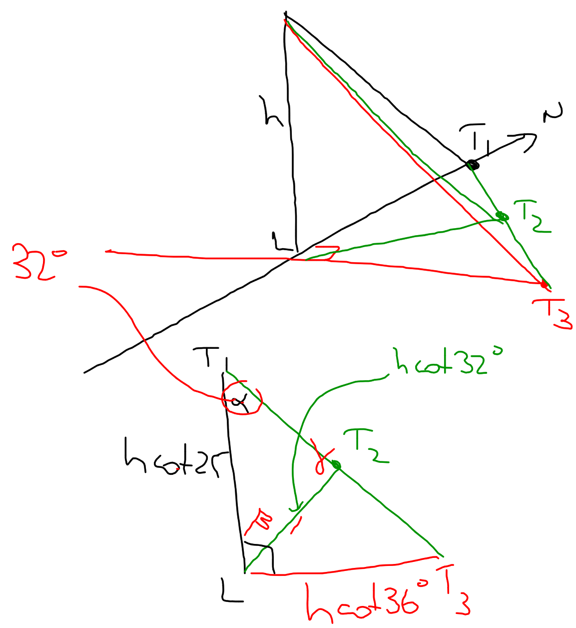
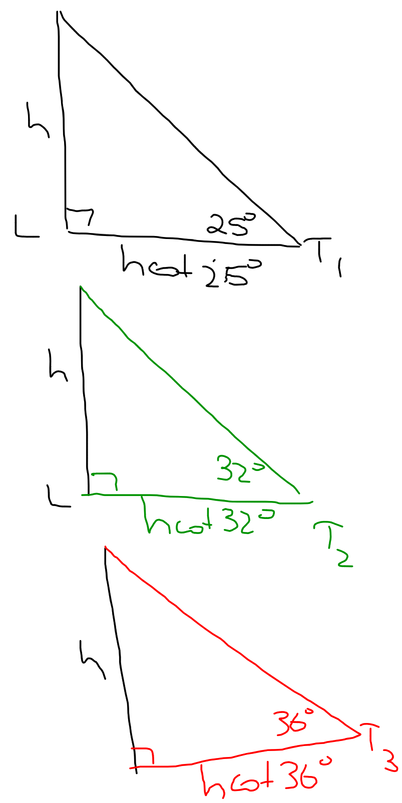
16/


h
L
T_1
N
T_2
T_3
32°
T_1
α
hcot25
$h\cot 32°$
T_2
γ
L
$h\cot 36°$
T_3


h
L
25°
T_1
$h\cot 25°$
h
L
32°
$h\cot 32°$
T_2
h
36°
T_3
$h\cot 36°$

$$\tan\alpha = \frac{h\cot 36^\circ}{h\cot 25^\circ}$$

$$= \frac{\cot 36^\circ}{\cot 25^\circ}$$

$$\frac{\sin\gamma}{h\cot 25^\circ} = \frac{\sin\alpha}{h\cot 32^\circ}$$

$$\sin\gamma = \frac{\sin\left(\tan^{-1}\frac{\cot 36^\circ}{\cot 25}\right)\times\cot 25^\circ}{\cot 32^\circ}$$

$$= \frac{\sin\left[\tan^{-1}\left(\frac{\tan 25}{\tan 36}\right)\right]\times\tan 32}{\tan 25^\circ}$$

$$\gamma = 46^\circ 22'$$

$$\beta = 180 - \alpha - \gamma$$

$$= 180 - 32 - 46$$

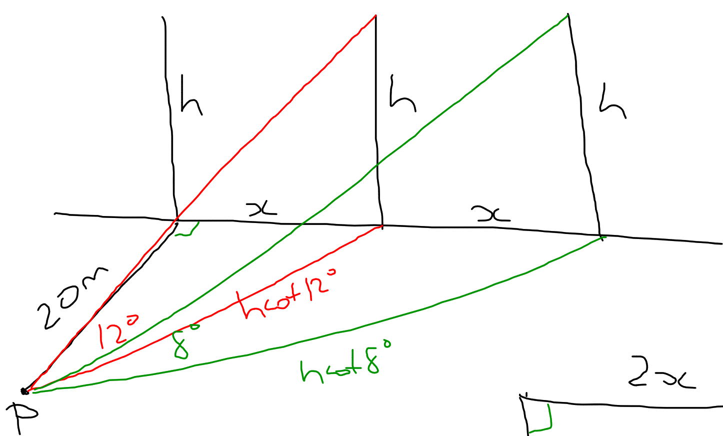
$$= 102 \times$$ β not obtuse.

$$\therefore \gamma = 134^\circ$$

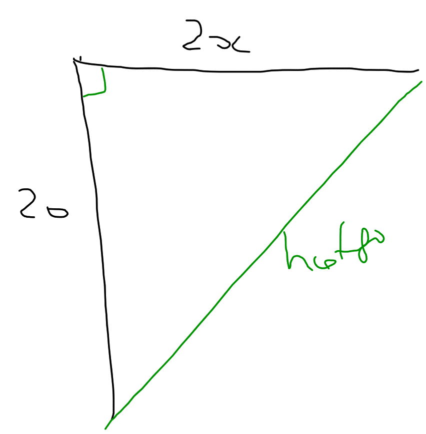
$$\beta = 180 - 32 - 134$$

$$= 14^\circ$$

12b)



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



$$4x^2 + 20^2 = h^2 \cot^2 8^\circ$$

$$= \left(\frac{x^2 + 20^2}{\cot^2 12^\circ} \right) \times \cot^2 8^\circ$$

$$4 \cot^2 12^\circ x^2 + 20^2 \cot^2 12^\circ = x^2 \cot^2 8^\circ + 20^2 \cot^2 8^\circ$$

$$x^2 \left(4 \cot^2 12^\circ - \cot^2 8^\circ \right) = 20^2 \cot^2 8^\circ - 20^2 \cot^2 12^\circ$$

$$x^2 = \frac{20^2 \left(\cot^2 8^\circ - \cot^2 12^\circ \right)}{4 \cot^2 12^\circ - \cot^2 8}$$