Since $CE = 9$ and $CB = 29$, Δs $CE'E$, CAB are similar in ratio of 9 to 29

So $EE' = \frac{9 \cdot 20}{29}$

and $CE' = \frac{9 \cdot 21}{29}$

$\Rightarrow E'A = 21 - CE' = \frac{20 \cdot 21}{29}$

So $\tan x = \frac{EE'}{E'A} = \frac{9 \cdot 20}{29} \cdot \frac{29}{20 \cdot 21} = \frac{3}{7}$ (see figure)

so $\tan x = \frac{3}{7}$ Note that since $EE' \parallel AB$, $EE' \perp E'A$

Using the exact same train of logic, we can show that

$\tan y = \frac{2}{5}$

Now $x + y + \theta = 90$, $\Rightarrow (x+y) + \theta = 90$. $\Rightarrow \theta = 90 - (x+y)$

So $\tan\theta = \tan(90-(x+y)) = \cot(x+y) = \frac{1}{\tan(x+y)}$ Also, θ is positive and acute.

Now $\tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y} = \frac{\frac{3}{7} + \frac{2}{5}}{1 - \frac{6}{35}} = \frac{\frac{29}{35}}{\frac{29}{35}} = 1$

So $\tan\theta = \frac{1}{\tan(x+y)} = \frac{1}{1} = 1$

Since θ is acute and positive, we have

$\tan\theta = 1 \Rightarrow \theta = \boxed{45^\circ \text{ or } \frac{\pi}{4} \text{ rad}}$