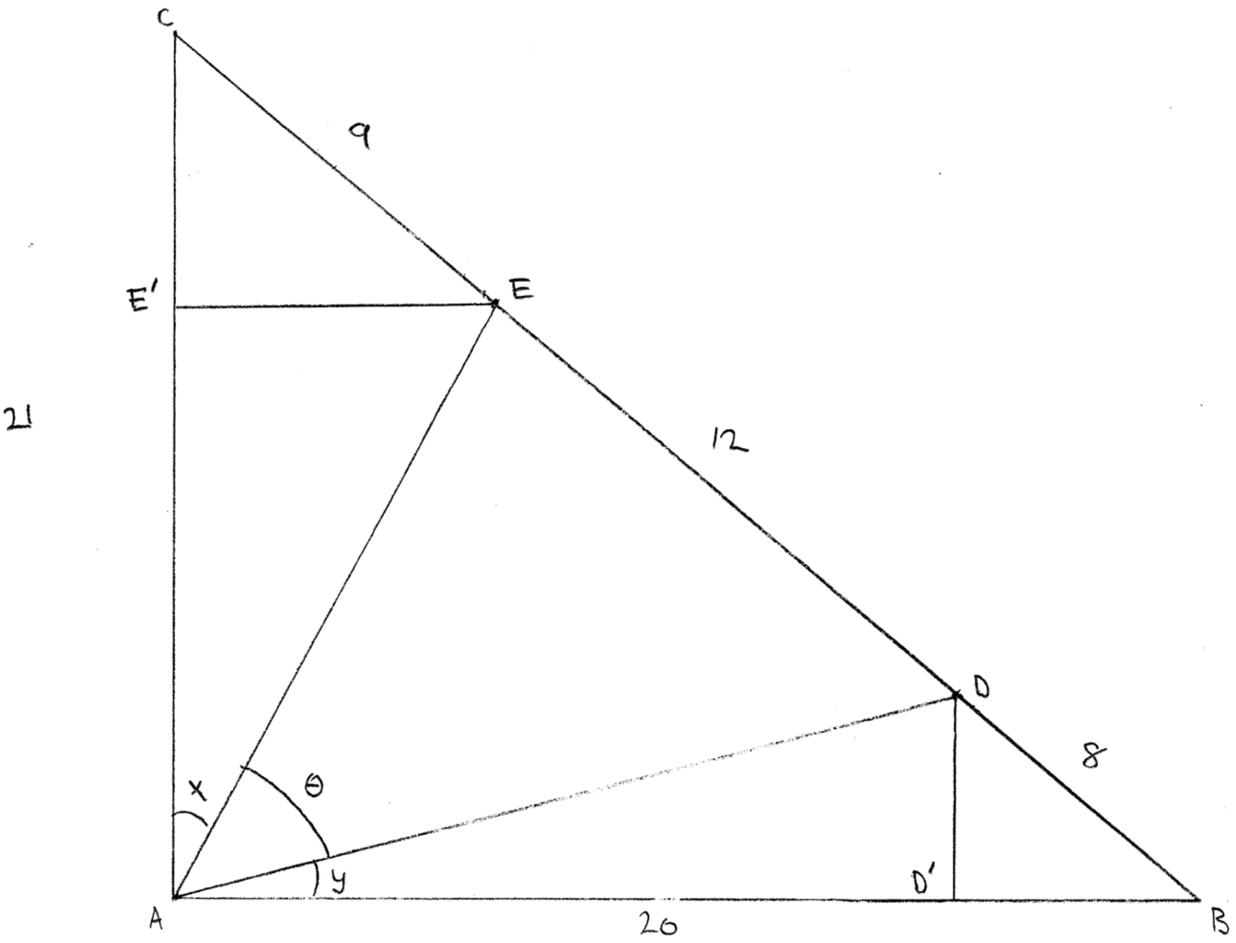
Proof:



lemma 1: $\triangle ABC$ is a right triangle with right angle at A

Proof: By the pythagorean theorem, if

$AB^2 + AC^2 = BC^2$, $\triangle ABC$ is right with right angle A,

so $AB^2 + AC^2 = 20^2 + 21^2 = 841 = 29^2 = BC^2$ thus proved:

– – end lemma – – – – – – –

Construct E' and D' on AC and AB such that $EE' \parallel AB$, $DD' \parallel AC$

So this causes $\triangle CE'E \sim \triangle CAB$, $\triangle BD'D \sim \triangle BAC$

So by similar triangles, we have the following.