Simple similarity problem
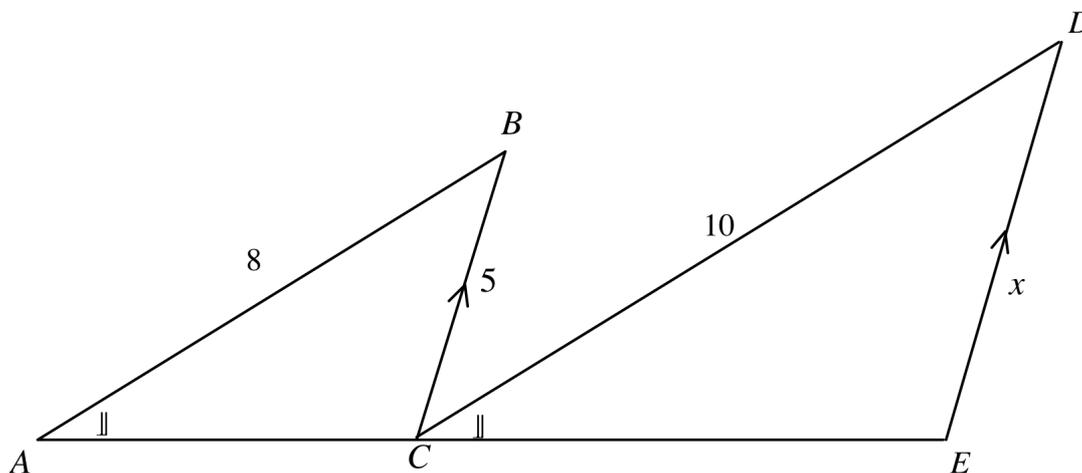
1. Prove that ΔABC is similar to ΔCDE.
2. Hence, if $AB = 8$, $BC = 5$ and $CD = 10$, find DE.

Solution

In ΔABC and ΔCDE

$\angle CAB = \angle ECD$	(given)
$\angle ACB = \angle AED$	(corresponding angles, $BC \parallel DE$)
$\therefore \Delta ABC \parallel\parallel\parallel \Delta CDE$	(AAA)

$\therefore \dfrac{AB}{CD} = \dfrac{BC}{DE} = \dfrac{AC}{CE}$ (matching sides of similar triangles)

$\therefore \dfrac{8}{10} = \dfrac{5}{x}$

$8x = 50$

$x = \dfrac{50}{8}$

$x = 12.5$