## Simple similarity problem

http://topdrawer.aamt.edu.au/Geometric-reasoning/Good-teaching/Writing-a-proof/Proving-Pythagoras-theorem/Dissected-proof


1. Prove that $\triangle A B C$ is similar to $\triangle C D E$.
2. Hence, if $A B=8, B C=5$ and $C D=10$, find $D E$.

## Solution

In $\triangle A B C$ and $\triangle C D E$

| $\angle C A B=\angle E C D$ | (given) |
| :---: | :---: |
| $\angle A C B=\angle A E D$ | (corresponding angles, $B C \\| D E$ ) |
| $\therefore \triangle A B C\\|\\| C D E$ | (AAA) |
| $\therefore \frac{A B}{C D}=\frac{B C}{D E}=\frac{A C}{C E}$ | (matching sides of similar triangles) |
| $\therefore \frac{8}{10}=\frac{5}{x}$ |  |
| $10 x$ |  |
| $8 x=50$ |  |
| $x=\frac{50}{8}$ |  |
| $x=12.5$ |  |

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