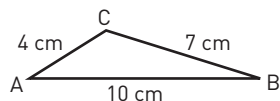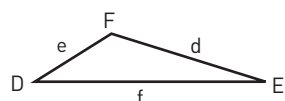> **YOU & MATHS** **Similar triangles** The lengths of the sides of a triangle are 4 cm, 7 cm, and 10 cm. The triangle is similar to another triangle whose perimeter is 52,5 cm. Find the lengths of the sides of the second triangle.

Let us call the first triangle *ABC*, with the lengths of the sides as in the figure.

Let us call *DEF* the second triangle, and let us call *d*, *e*, *f* the lengths of its sides.

The triangles *ABC* and *DEF* are similar. Let *k* be their ratio of similitude. We can write the following:

$$\begin{cases} d = k \cdot 7 \\ e = k \cdot 4 \\ f = k \cdot 10 \\ d + e + f = 52,5 \end{cases}.$$

We get:

$$d + e + f = k \cdot 21 = 52,5 \rightarrow k = 2,5.$$

Therefore we conclude that the lengths of the sides of the second triangle are:

$$\begin{cases} d = 17,5 \text{ cm} \\ e = 10 \text{ cm} \\ f = 25 \text{ cm} \end{cases}.$$