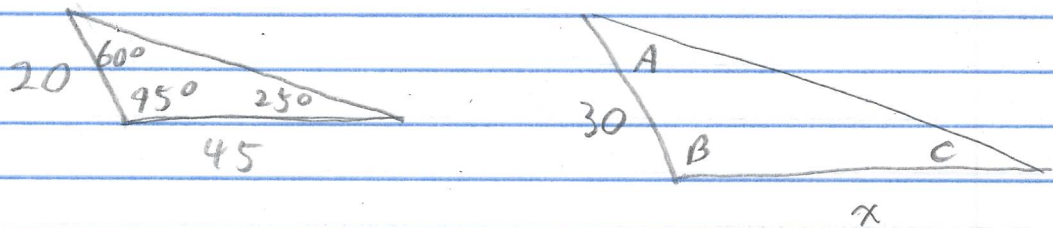


Exercise A.2.45 The given pair of triangles are similar. Find the missing length  $x$  and the missing angles  $A$ ,  $B$ , and  $C$ .



Solution

Recall that two triangles are similar if the corresponding angles are equal and the lengths of the corresponding sides are proportional. As for the angles we must have

$$\boxed{A = 60^\circ, B = 95^\circ, C = 25^\circ}$$

Since corresponding edges are proportional then we have

$$\frac{x}{45} = \frac{30}{20}$$

$$\text{So (cross multiplying)} \quad x = \left(\frac{30}{20}\right)(45)$$

$$= \left(\frac{3}{2}\right)(45) = \frac{135}{2} = 67.5$$

$$\text{That is, } \boxed{x = 67.5} \quad \square$$