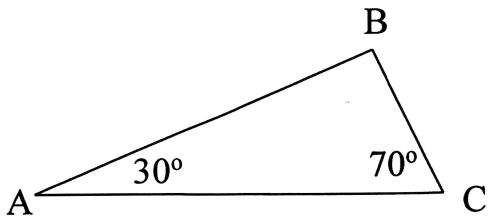
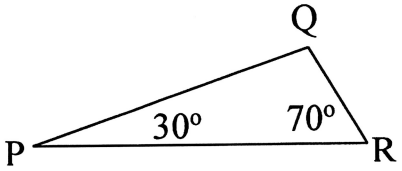
Similar Triangles: Part 2

It has been shown that, if the three angles in one triangle are _____to the three angles in another triangle then the two triangles are _____.

However, what if we only know that two angles are the same? Look at the diagram below.





Are these triangles similar?

We know that <BAC =
<BCA =

But what about <ABC and <PQR?

Using the rule ASTT, we find that both < B and < Q are equal to _____.

This example shows that if a pair of angles in one triangle are equal to a corresponding pair of angles in another triangle then the third set of corresponding angles must also be _____.

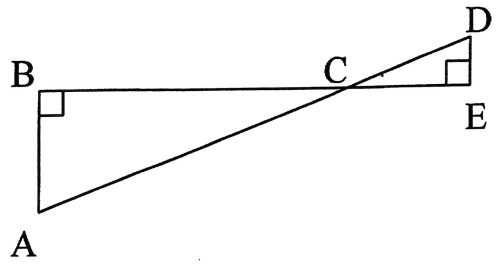
Therefore, we no longer need to show that all three angles in two triangles are equal to prove that the triangles are similar.

Angle-Angle-Similarity Rule

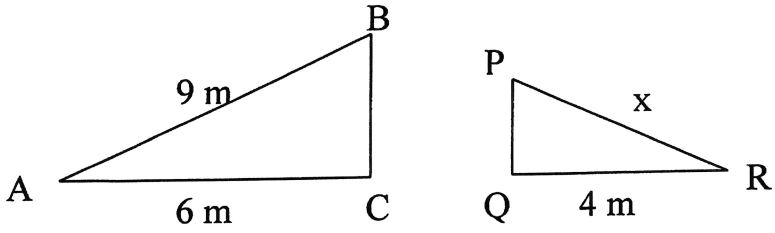
If two angles in one triangle are the same as two angles in another triangle, then the two triangles are similar by AA~.

Examples

1. **Prove that two triangles are similar.**

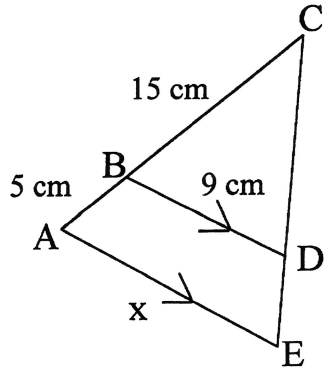


2. **Determine the length of x.**



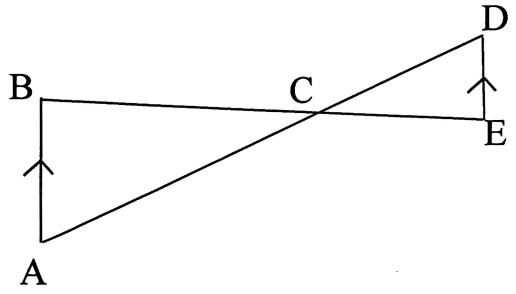
Given: ΔABC~ ΔRPQ

3. **Determine the length of x.**



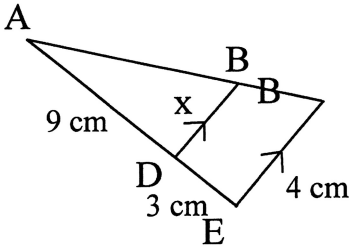
Practice

1. **Prove that two triangles are similar.**

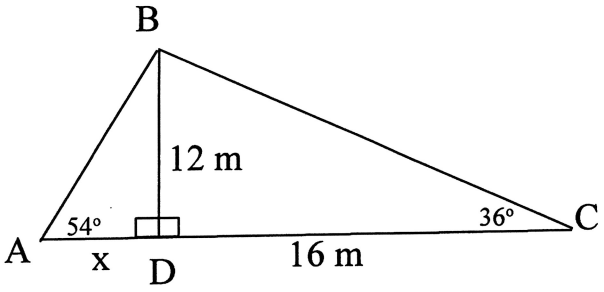


2. **Determine the length of the side marked x; be sure to include a proof.**

a)



b)



Answers:1. $\Delta ABC \sim \Delta DEC$, 2. a) 3 cm b) 9 m