# Similar & Congruent Triangles

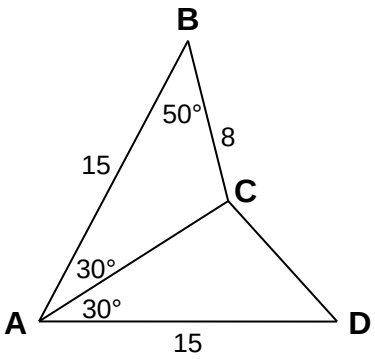
***Practice Problems***

## EXERCISES

A. Given two triangles, what three tests can be used to determine whether or not the triangles are congruent?

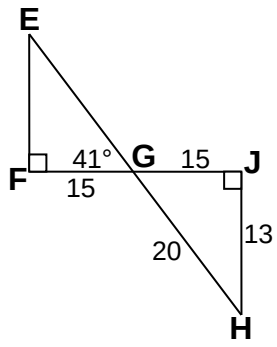
B. 1. For each of these sets of triangles, state the rule that tells you that they are congruent.
2. Find the unknown values.

a)



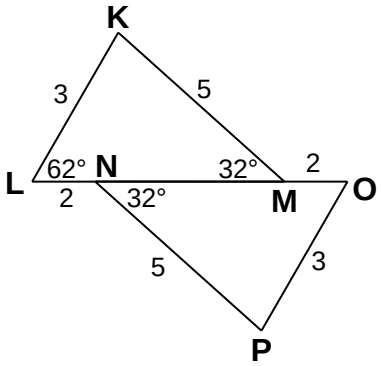

CD = ? ∠D = ?

b)




EG = ? EF = ?

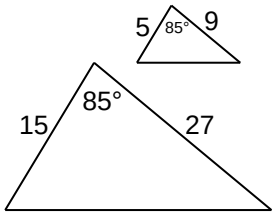
c)



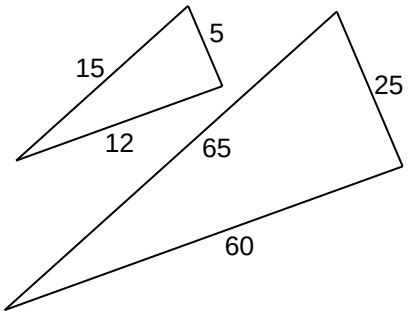

∠O = ? ∠P = ?

C. 1. Which of these pairs of triangles are similar?
2. For the pairs that are similar, what rule did you use to prove that they are similar?

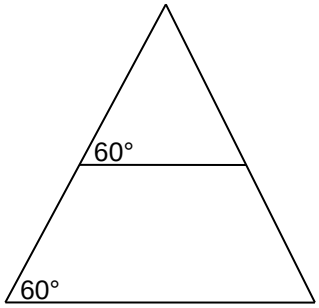
a)




b)




c)



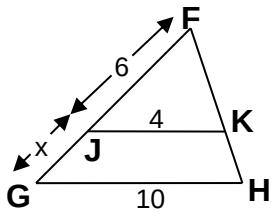

D. If two angles of one triangle are equal to two angles of another, does that mean the two triangles must be similar?



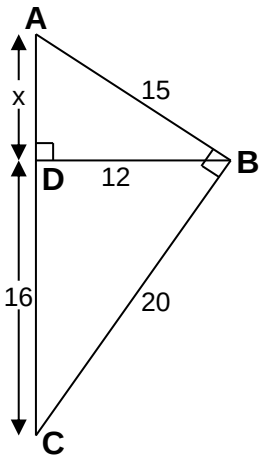
*Authored by Gordon Wong*

E. Solve for x in each of the following:

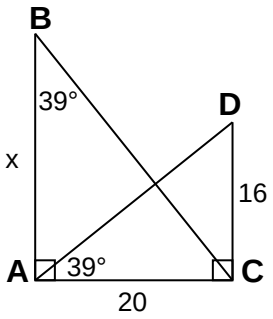
1) △FJK ~ △FGH



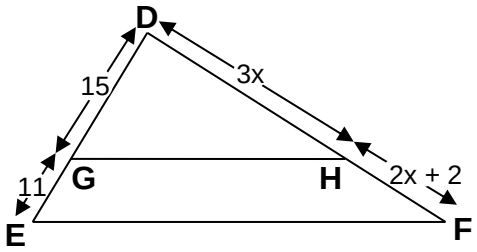

4) △ABD ~ △ACB



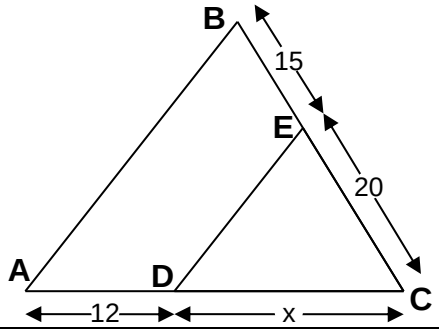

2) △ABC ~ △CAD




5) △DGH ~ △DEF




3) △ ABC ~ △DEC




**SOLUTIONS**

A. side-side-side (SSS), angle-side-angle (ASA) and side-angle-side (SAS)

B. (a) SAS; CD = 8, ∠D = 50 (b) ASA; EG = 20, EF = 13 (c) SSS; ∠O = 62°, ∠P = 86°

C. (a) Similar; SAS and the ratios between corresponding sides are equal.
(b) Not similar. (c) Similar; the three angles can be shown to be the same.

D. Yes, since the sum of the three angles of a triangle is 180°, the third angles must be the same to make up this total.

E. (1) x = 9 (2) x = 25 (3) x = 16 (4) x = 9 (5) x = 10