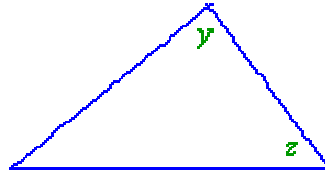
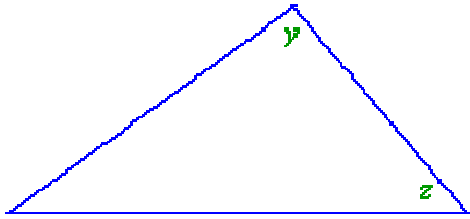


## Similar Triangles

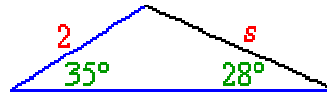
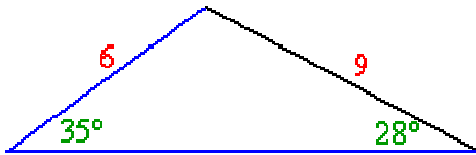
Two triangles are similar if the AA rule or RAR rule is true.

### AA Rule

If two angles of one triangle are equal to two angles of another triangle, then the triangles are similar.



Example 1: Given the following triangles, find the length of  $s$



Solution:

Step 1: The triangles are similar because of the AA rule

Step 2: The ratios of the lengths are equal.

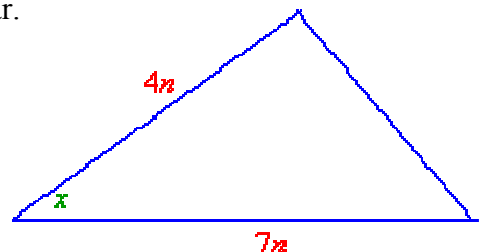
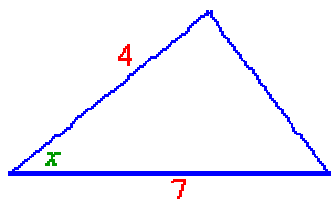
$$\frac{6}{2} = \frac{9}{s}$$

Step 3: Cross Multiplying:  $6s = 18 \Rightarrow s = 3$

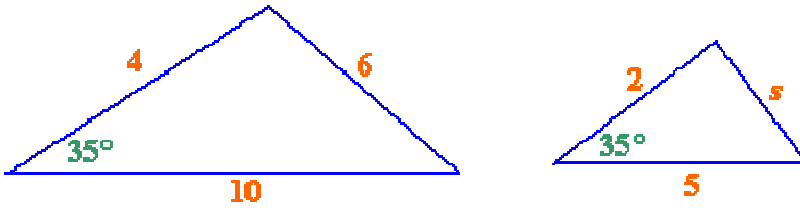
Answer: The length of  $s$  is 3

### RAR Rule

If an angle of one triangle is congruent to an angle of another triangle and the sides containing these angles have the same ratio, then the triangles are similar.



Example: Given the following triangles, find the length of  $s$ .



Solution:

The triangles are similar by the RAR Rule (the sides that form the  $35^\circ$  angle have a 2:5 ratio).

The ratios help us to form a proportion with the missing length.

$$\frac{4}{2} = \frac{6}{s}$$
$$4s = 12 \quad \text{Cross-multiplying, 4 times } s \text{ equals 2 times 6.}$$
$$s = 3$$

Answer: The length of side  $s$  is 3.

Two short videos which help explain Similar Triangles can be found at:

<http://www.youtube.com/watch?v=BI-rtfZVXy0>

<http://www.youtube.com/watch?v=qO2cTx6DwCA>