TOPIC: SIMILAR FIGURES

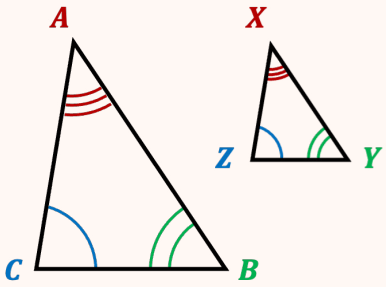
Similar Triangles

◆ We can compare two shapes by examining their **corresponding angles & sides**. Two figures are **similar** if:

► Their **corresponding angles** have _____ measure AND

► Their **corresponding sides** are _____ (same *shape*, different *size*).

New **Similar Triangles**



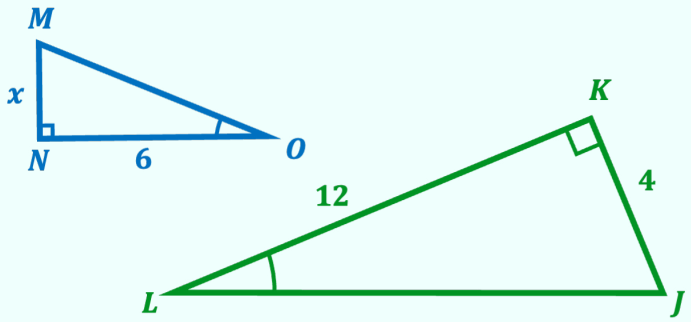
$m\angle A = m\angle$ _____
$m\angle B = m\angle$ _____
$m\angle C = m\angle$ _____
(Corresponding Angles)

$\frac{AB}{\quad} = \frac{BC}{\quad} = \frac{AC}{\quad}$ *large* Δ / *small* Δ
(Corresponding Sides)

$\Delta ABC \sim$
Note: Order matters!

◆ If 2 triangles are similar, we can find missing side lengths using proportions to set up an equation & solve.

EXAMPLE Given that $\Delta MNO \sim \Delta JKL$, find x.



New

corresponding $\frac{\text{known}}{\text{known}} = \frac{\text{unknown}}{\text{known}}$ *corresponding*

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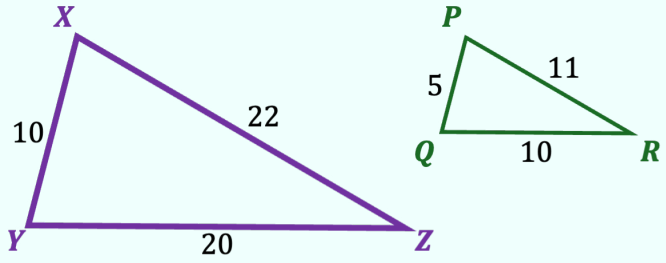
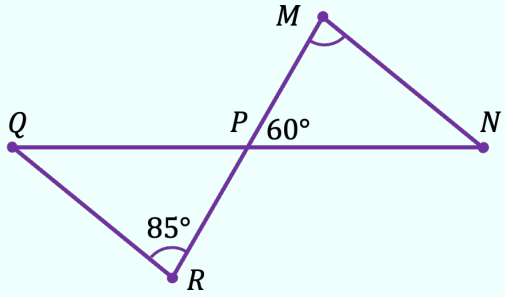
EXAMPLE Explain why each pair of triangles is similar by showing…

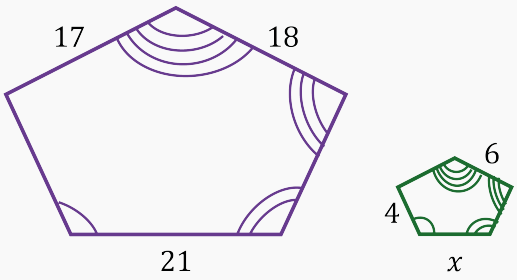
(***A***) All corresponding sides are proportional.



(***B***) All corresponding angles are equal.



PRACTICE The following shapes are similar. Find x.



Recall

corresponding $\frac{\text{known}}{\text{known}} = \frac{\text{unknown}}{\text{known}}$ corresponding

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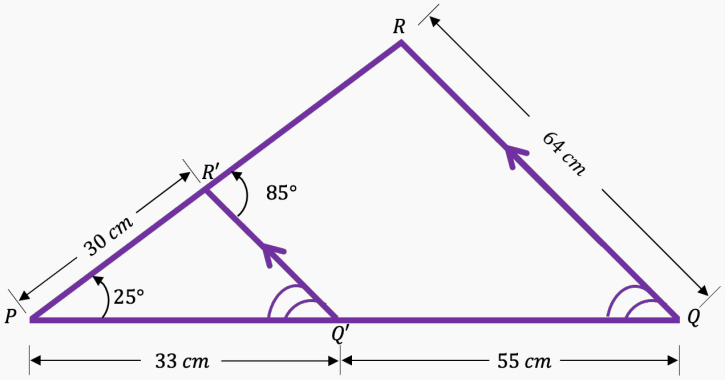
PRACTICE Use the similar triangles to find the following:

(***A***) $m\angle R$



(***B***) The length of $\overline{PR}$

EXAMPLE

On a campus walkway, a 6 m tall streetlight shines down on the pavement. Jordan (1.5 m tall) stands 4 m from the base of the streetlight. The light from the top of the streetlight, the top of Jordan's head, and the tip of Jordan's shadow form two similar right triangles with the ground.

(***A***) Sketch a diagram of the problem.
(***B***) Find the length of Jordan's shadow in meters.