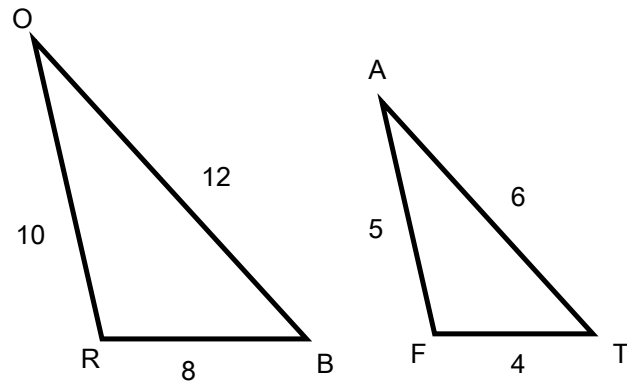# 5.1 Similar Triangles

Objective: Students will able to find the missing side lengths and angles in similar triangles.

Properties of Similar Triangles
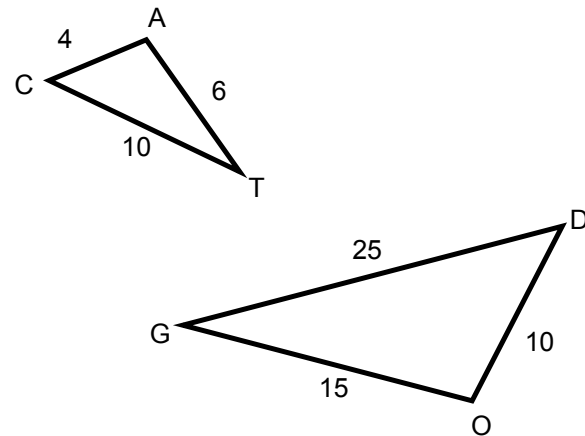
$\triangle ROB \sim \triangle FAT$

Similar to

If triangles are similar, we know two things:

1)_____

2)_____

$$\underline{\hspace{1cm}} = $$
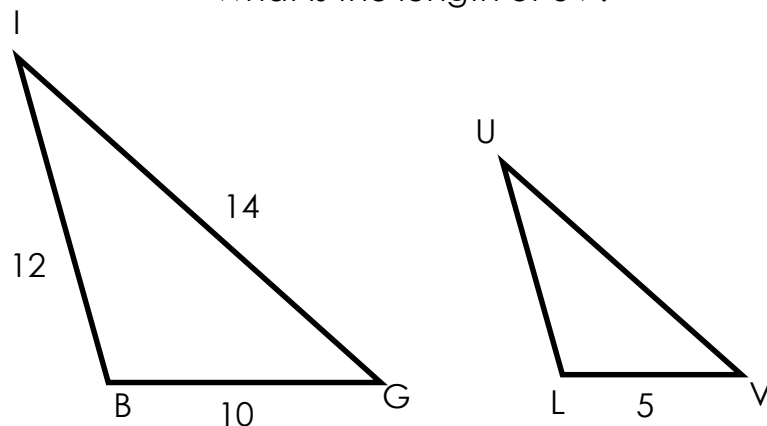
$$\underline{\hspace{1cm}} = $$

$$\underline{\hspace{1cm}} = $$

$\triangle CAT \sim \triangle DOG$ state which angles are congruent and the ratio of the corresponding sides

$\angle\underline{\hspace{1cm}} \cong \angle\underline{\hspace{1cm}}$

$\angle\underline{\hspace{1cm}} \cong \angle\underline{\hspace{1cm}}$

$\angle\underline{\hspace{1cm}} \cong \angle\underline{\hspace{1cm}}$

$$\underline{\hspace{1cm}} = $$

$$\underline{\hspace{1cm}} = $$

$$\underline{\hspace{1cm}} = $$

Triangle BIG is similar to triangle LUV.
What is the length of UV?

I

14

12

B   10   G

U

L   5   V

Step 1: Set Up Ratio's
Step 2: Cross Multiply
Step 3: Solve

_____ = _____

△ABC ~ △DEF. Find the length of $\overline{CB}$ if AC = 12, DF = 9, and FE = 14.

A

C

B

D   E

F

Step 1: Set Up Ratio's
Step 2: Cross Multiply
Step 3: Solve

_____ = _____
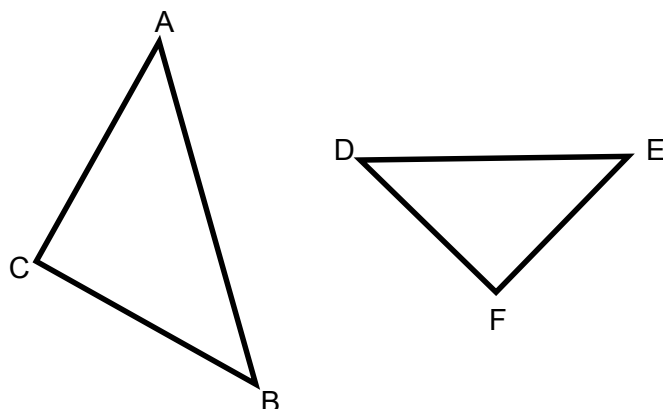
If $\overline{VU}$ = 4, $\overline{VW}$ = 6, $\overline{WU}$ = 9, and $\overline{XZ}$ = 15, what is the length of $\overline{XY}$?

X

V   W

Y

U
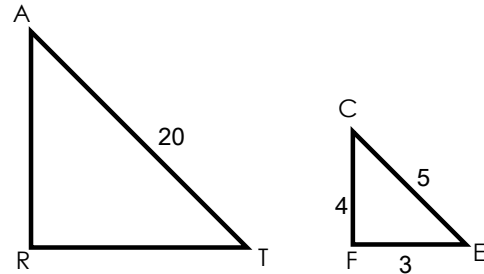
Z

Step 1: Set Up Ratio's
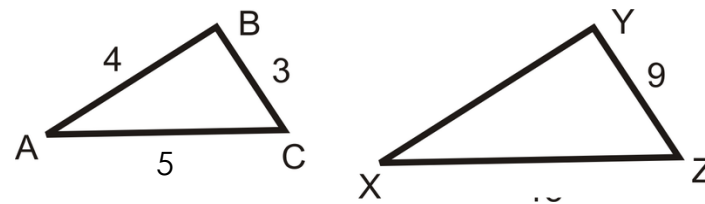Step 2: Cross Multiply
Step 3: Solve

_____ = _____
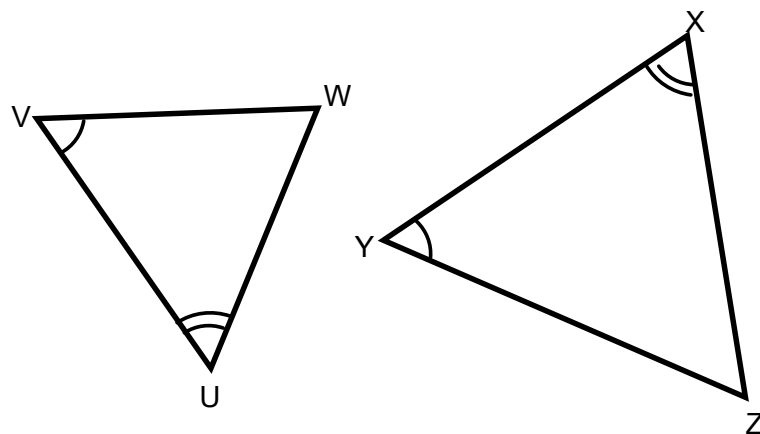
Independent Practice

What are the two properties of similar triangle? (Look on your notes!)

1)_____ 2)_____

△RAT ~△ FCE. Find the length of A$\overline{R}$.
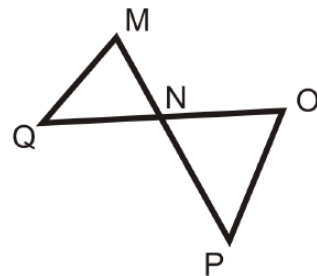

△ABC ~△XYZ. Find the length of XZ

△ABC ~ △DFE. Find the length of FE?
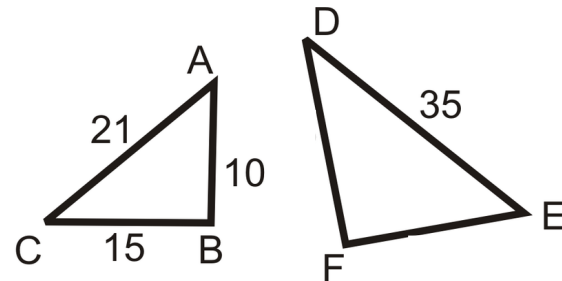
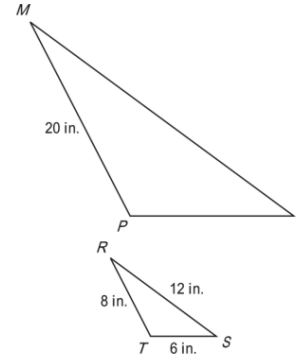If △MNQ ~ △ONP and MN = 12, NP = 15, QN = 20, what is the length of ON?

Triangle ABC is similar to triangle MNP ($\triangle ABC \sim \triangle MNP$).
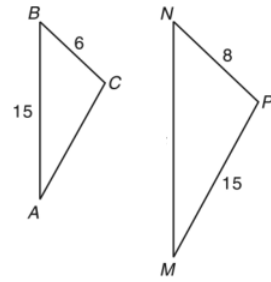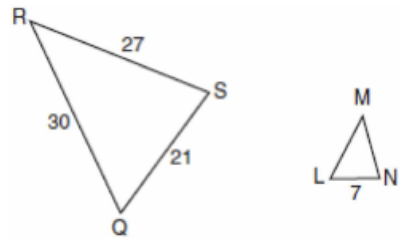

Find the length of $\overline{NM}$.

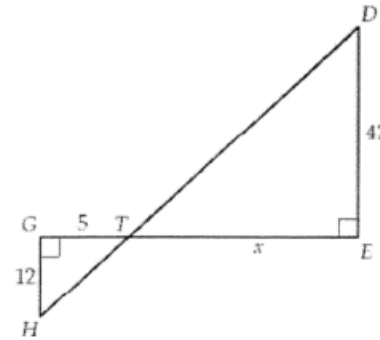In the diagram below, $\triangle MNP \sim \triangle RST$.

Based on the dimensions in the diagram, what is the length of $\overline{MN}$?

In the accompanying diagram, $\triangle QRS$ is similar to $\triangle LMN$, $RQ = 30$, $QS = 21$, $SR = 27$, and $LN = 7$. What is the length of $\overline{ML}$?
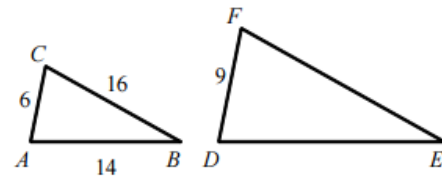

Look at the figure below.

Find the length of $\overline{TE}$.

Find the perimeter of $\triangle DEF$ if $\triangle ABC \sim \triangle DEF$.

A triangle has sides whose lengths are 5, 12, and 13. A similar triangle could have sides with lengths of

1)   3, 4, and 5
2)   6, 8, and 10
3)   7, 24, and 25
4)   10, 24, and 26

Explain why you picked your answer