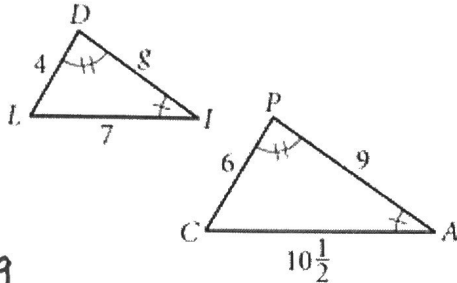## Homework- Similar Triangles
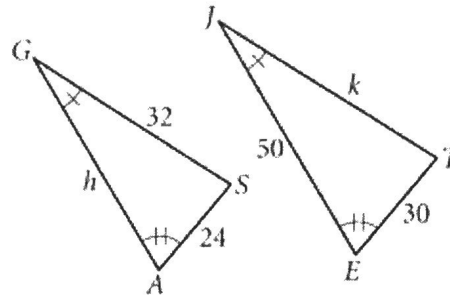
For questions 1 – 4, write a similarity statement. Then find the measures of the missing sides.

1. $g = \underline{\ ?\ } = 6$
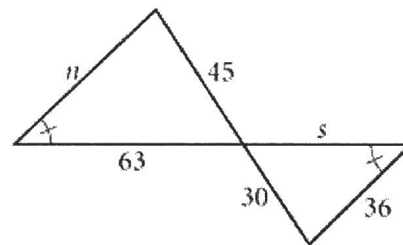
$$\frac{4}{6} = \frac{9}{g}$$
$$36 = 6g$$
$$6 = g$$

2. $h = \underline{\ ?\ }, k = \underline{\ ?\ }$

3. $m = \underline{\ ?\ } = 28$
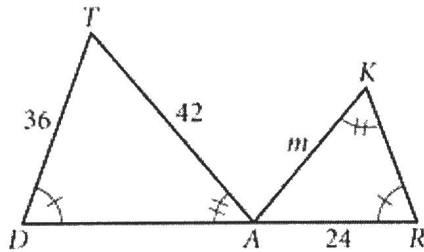
$$\frac{36}{24} = \frac{42}{m} \qquad 36m = 1008$$
$$m = 28$$

4. $n = \underline{\ ?\ }$,

$s = \underline{\ ?\ }$
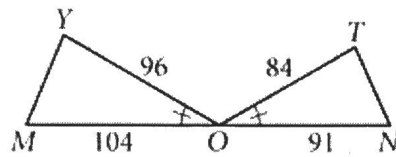
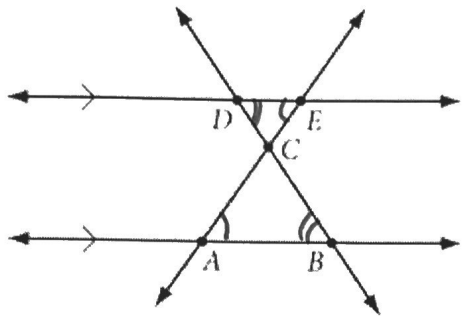**5.** Is $\triangle AUL \sim \triangle MST$?

Explain why or why not.
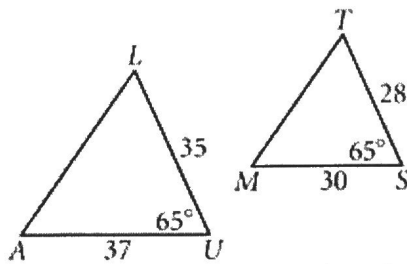
✓ $\angle U \cong \angle S$

$$\frac{35}{28} = \frac{37}{30}$$

$1050 \neq 1596$

not similar
- sides are
not
proportional

6. Is $\triangle MOY \sim \triangle NOT$?

Explain why or why not.

7. $\triangle ABC \sim \triangle ???$. Why?

$\triangle ABC \sim \triangle EDC$
by AA~

$\angle B \cong \angle D$
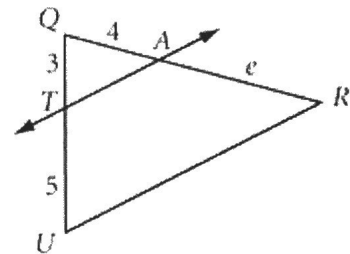$\angle E \cong \angle A$
alt. int. $\angle$'s

8. $\overline{TA} \parallel \overline{UR}$

Is $\angle QTA \cong \angle TUR$?

Is $\angle QAT \cong \angle ARU$?

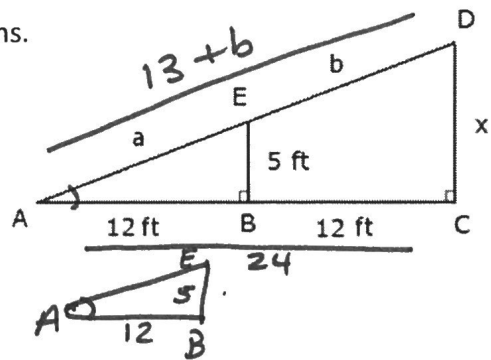Why is $\triangle QTA \sim \triangle QUR$?

$e = \underline{\ ?\ }$

9. Use the figure below to answer the following questions.

a. $\triangle ABE \sim \triangle ACD$ by AA~
$\angle A \cong \angle A$, $\angle B \cong \angle C$

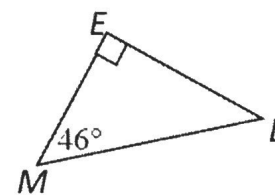b. Solve for x. $\dfrac{5}{x} = \dfrac{12}{24}$ $\quad 12x = 120$

$\boxed{x = 10}$

c. Solve for b given that a = 13.

$\dfrac{13}{13+b} \doteq \dfrac{5}{10}$ $\qquad 130 = 65 + 5b$

$\boxed{b = 13}$

10. Which of the following is true about the triangles below?

A. Similar but not congruent
B. Congruent but not similar
C. Both similar and congruent
D. Neither similar nor congruent

$\angle M \cong \angle N$
$\angle E \cong \angle U$
AA~

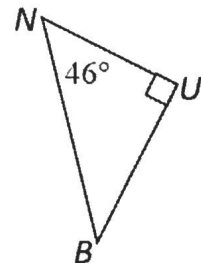**11.** Which of the following is true about the triangles below:

(A.) Similar but not congruent
B. Congruent but not similar
C. Both similar and congruent
D. Neither similar nor congruent

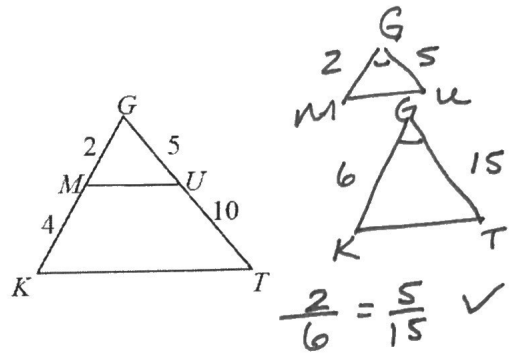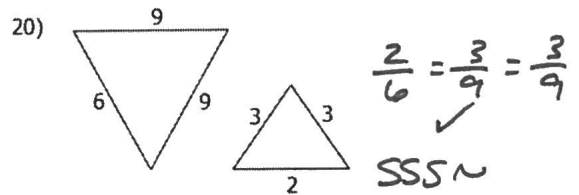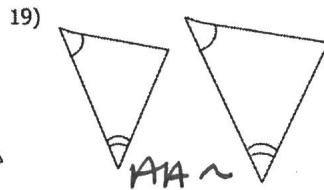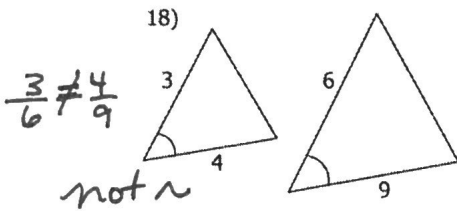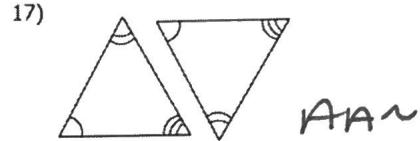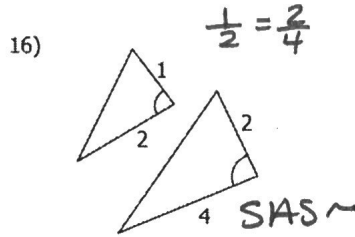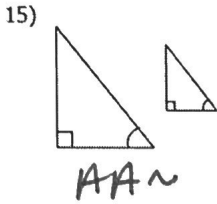Identify which property will prove these triangles are similar (AA~, SAS~, SSS~)

15)

AA~

16)

$\frac{1}{2} = \frac{2}{4}$

2   2

4   SAS~

17)

AA~

18)

$\frac{3}{6} \neq \frac{4}{9}$

not ~

3

4

6

9

19)

AA~

20)

9

6   9

3   3

2

$\frac{2}{6} = \frac{3}{9} = \frac{3}{9}$

✓

SSS~

Write corresponding congruent angles and proportional sides. Then, identify which property will prove these triangles are similar (AA similarity, SAS similarity, SSS similarity). Write a similarity statement.

21)

C

10   8

B   12   D

G   6   F

4   5

O
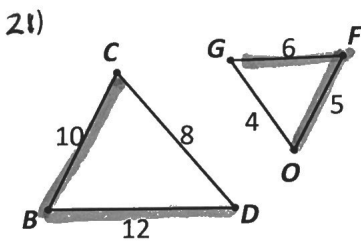
Corresponding parts: $\frac{4}{8} = \frac{5}{10} = \frac{6}{12}$ ✓

.5 = .5 = .5

Are triangles similar? How?   Yes — SSS ~

If so, state the similarity statement: △CBD ~ △OFG

If not similar, why not:

(top right diagram)

G

2   5

M   U

4   10

K   T

G   2   S

M   U

6   15

K   T

$\frac{2}{6} = \frac{5}{15}$ ✓

22)

Corresponding parts: $\angle H \cong \angle N$

$$\frac{4}{1} = \frac{12}{3} \checkmark$$
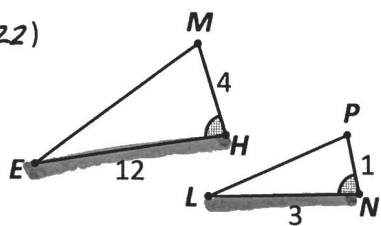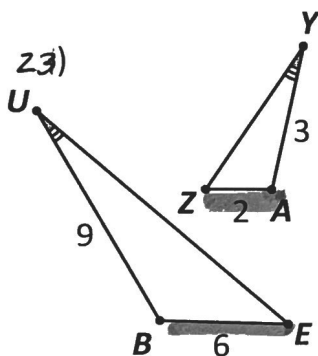
Are triangles similar? How?

Yes. SAS ~

If so, state the similarity statement:

$\triangle EHM \sim \triangle LNP$

If not similar, why not:

___

23)

Corresponding parts: $\angle U \cong \angle Y$ $\frac{9}{3} = \frac{6}{2}$

Are triangles similar? How? No   not SAS ~
SSS ~
or AA ~

If so, state the similarity statement:

If not similar, why not: sides are not proportional in the right place!