1.) Are the triangles similar? If yes, state what postulate or theorem was used and write the similarity statement.
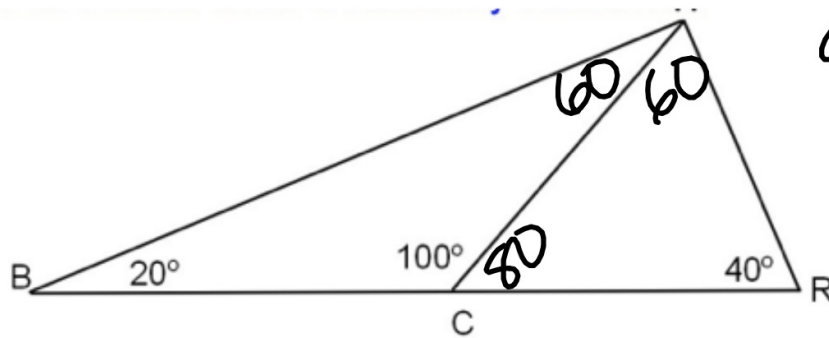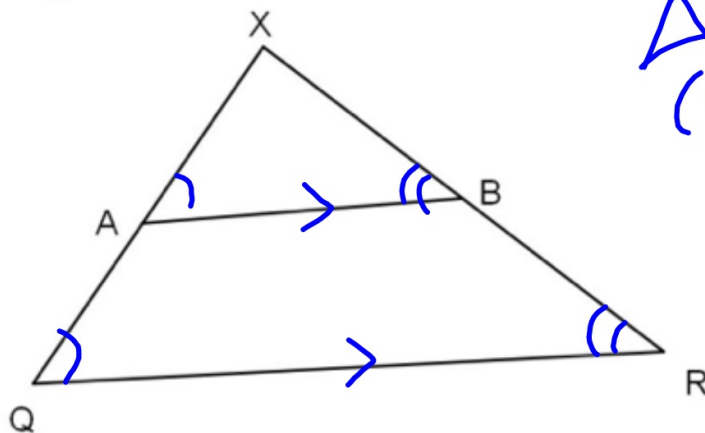
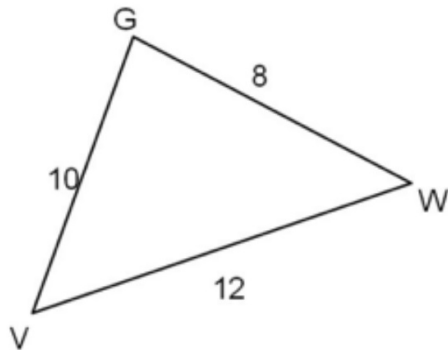NO the △s are not similar

B 20°   100° 80   60 60   40° R
C

2.) Are the triangles similar? If yes, state what postulate or theorem was used and write the similarity statement.
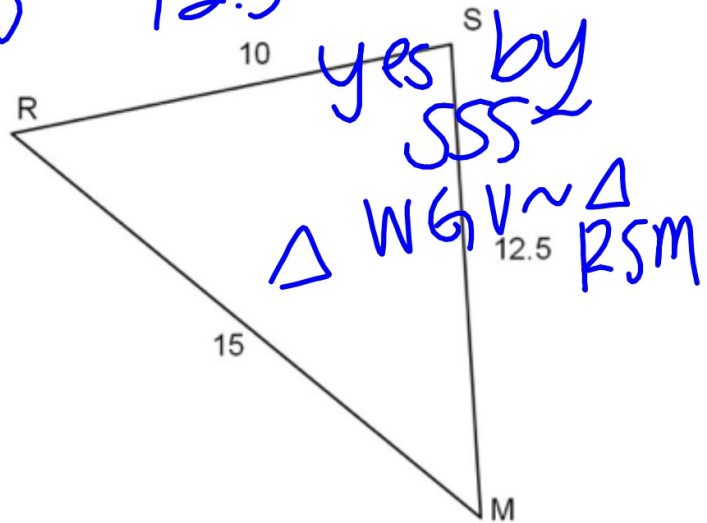
Given $\overline{AB} \parallel \overline{QR}$

AA ~ similar
A. △ABX ~ △QRX
corresp angles
≅

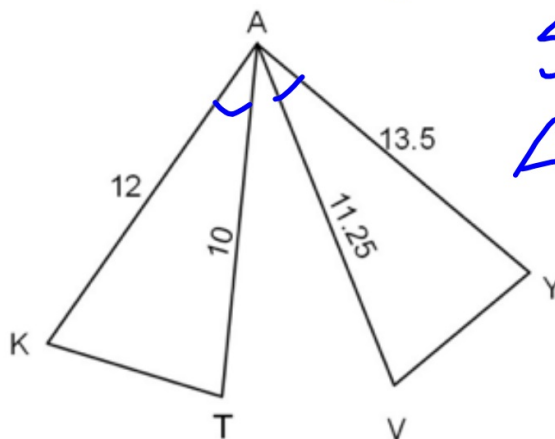3.) Are the triangles similar? If yes, state what postulate or theorem was used and write the similarity statement.

$$\frac{8}{10} = \frac{10}{12.5} = \frac{12}{15} = .8$$

yes by SSS~

△ WGV ~ △ RSM

G
8
10
W
12
V

S
10
R
12.5
15
M

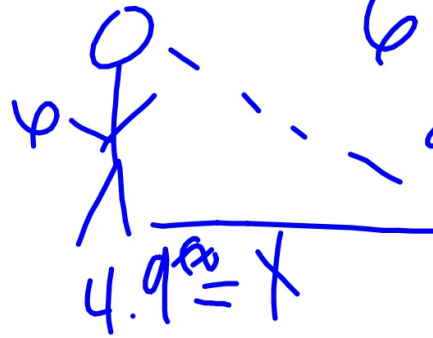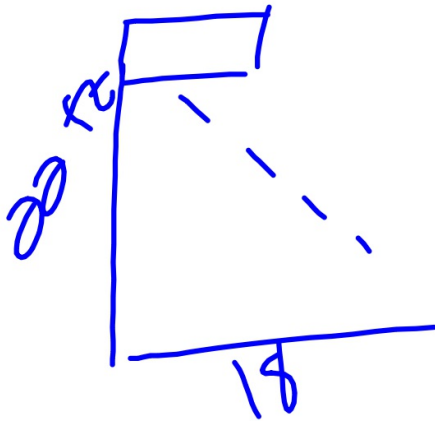4.) Are the triangles similar? If yes, state what postulate or theorem was used and write the similarity statement.

$$\frac{12}{13.5} = \frac{10}{11.25} = .88\overline{8}$$

SAS~

△ KAT ~ △ YAV

Given: ∠KAT ≅ ∠YAV

A
13.5
12
10
11.25
Y
K
T
V

5.) A 22-foot-tall flagpole casts an 18-foot-long shadow. How long would the shadow of a 6-foot-tall person be?
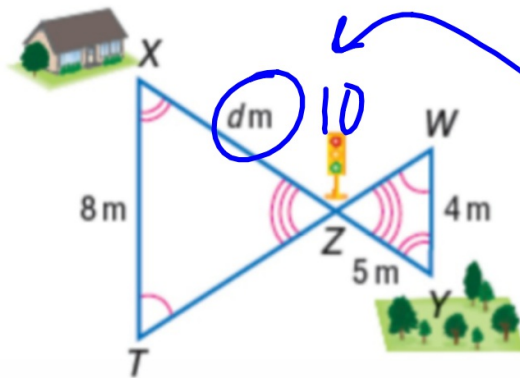
$$\frac{22}{6} = \frac{18}{x}$$

$$22x = 108$$

$$4.9 = x \qquad x = 4.9$$

6.) **WALKING** Find the distance from the park to the house. 15 m

$$\frac{4}{8} = \frac{5}{d}$$

$$4d = 40$$

$$d = 10$$

7.) In the equation $(ax+3)^2=36$, a is a constant. If x = -3 is one solution to the equation, what is a possible value of a?

$$ax+3=\pm 6$$
$$-3a+3=\pm 6$$
$$-3a=3, -9$$
$$a=-1, 3$$

1. If polygons are similar then what do you know about the corresponding sides and the corresponding angles?
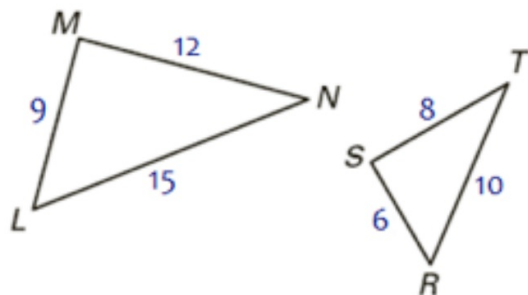
$\equiv$.

are proportional

Given the similar figures, name all pairs of corresponding sides and angles. Look at the similarity statement to help.
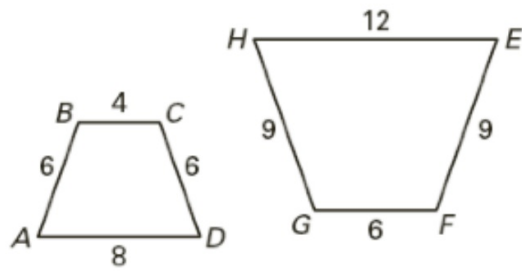
2. $\triangle PQR \sim \triangle DEF$

$\overline{QP} \rightarrow$ _ED_ $\angle Q \cong$ _$\angle E$_

$\overline{PR} \rightarrow$ _DF_ $\angle P \cong$ _$\angle D$_

$\overline{RQ} \rightarrow$ _FE_ $\angle R \cong$ _$\angle F$_

3. $\triangle LMN \sim \triangle RST$

$\overline{LM} \rightarrow$ _RS_ $\angle L \cong$ _$\angle R$_

$\overline{MN} \rightarrow$ _ST_ $\angle M \cong$ _$\angle S$_

$\overline{NL} \rightarrow$ _TR_ $\angle N \cong$ _$\angle T$_

4. AB̶CD̶ ∼ H̶G̶FE̶

$\overline{AB} \rightarrow$ **HG** $\angle A \cong$ **∠H**

$\overline{BC} \rightarrow$ **GF** $\angle B \cong$ **∠G**

$\overline{CD} \rightarrow$ **FE** $\angle C \cong$ **∠F**

$\overline{DA} \rightarrow$ **EH** $\angle D \cong$ **∠E**

② $\dfrac{PQ}{DE} = \dfrac{QR}{EF} = \dfrac{PR}{DF}$

③ $\dfrac{LM}{RS} = \dfrac{MN}{ST} = \dfrac{LN}{RT}$

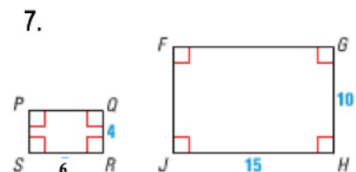④ $\dfrac{AB}{HG} = \dfrac{BL}{GF} = \dfrac{CD}{FE} = \dfrac{AD}{HE}$

Complete the similarity statement for the similar figures and then find the scale factor. REDUCE fractions!
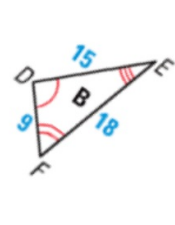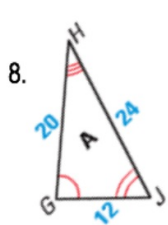
5.
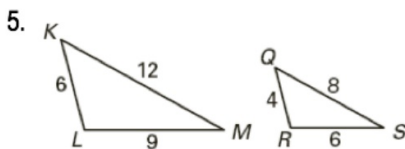
$\triangle LKM \sim \triangle$ **RQS**

Scale Factor: $\dfrac{6}{4}$ $\dfrac{KL}{QR} = \dfrac{3}{2}$

6.
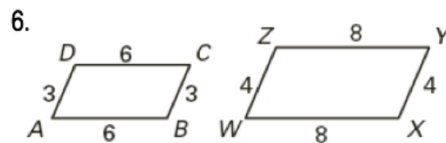
$CBAD \sim$ **YXWZ**

Scale Factor: $\dfrac{3}{4}$

7.

$RSPQ \sim$ **HJFG**

Scale Factor: $\dfrac{2}{5}$

8.

$\triangle HJG \sim \triangle$ _EFD_

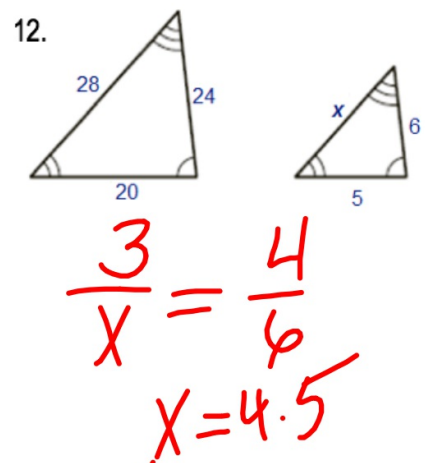Scale Factor: $\dfrac{20}{15} = \dfrac{4}{3}$

9.
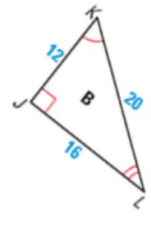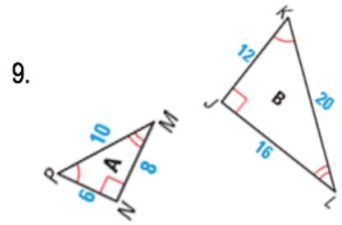
$\triangle NPM \sim \triangle$ _JKL_

Scale Factor: $\dfrac{1}{2}$

10.
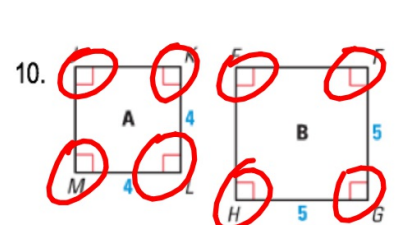
$KJML \sim$ _FEHG_

Scale Factor: $\dfrac{4}{5}$

The two polygons are similar. Write a proportion and solve for x.
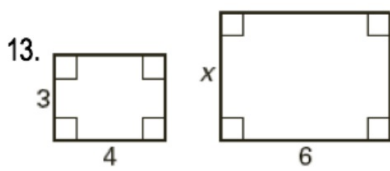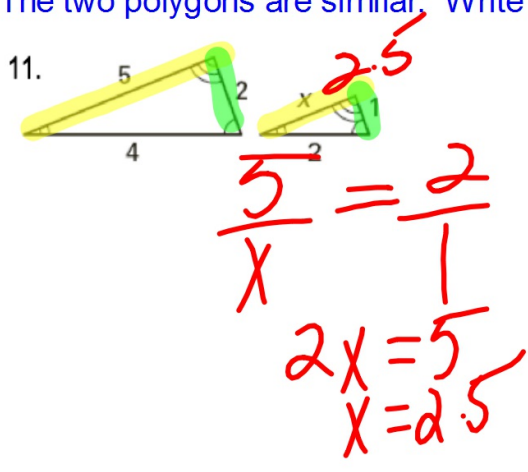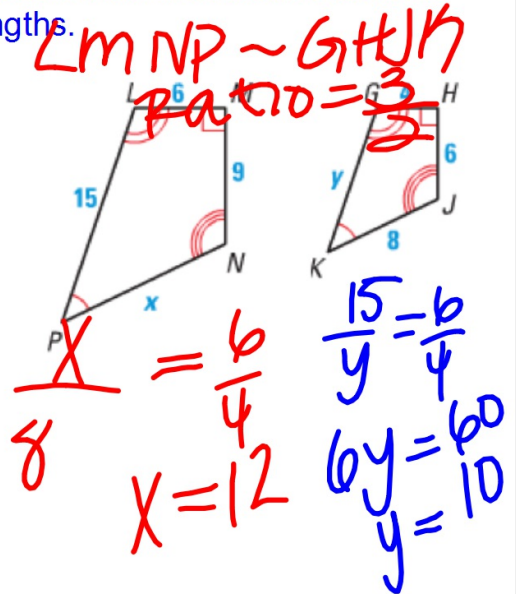
11. 5, 2, 4, x, 2.5, 2, 1

$\dfrac{5}{x} = \dfrac{2}{1}$

$2x = 5$

$x = 2.5$

12. 28, 24, 20, x, 6, 5

$\dfrac{3}{x} = \dfrac{4}{6}$

$x = 4.5$

12. $\dfrac{28}{x} = \dfrac{20}{5}$

$x = 7$

13. 3, x, 4, 6

Complete the similarity statement for the similar figures and then find the scale factor.
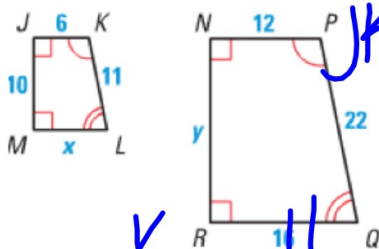Next, write proportions and SOLVE for the missing lengths.

$\triangle JKL \sim \triangle PRQ$

Ratio $= \dfrac{3}{2}$

14.

$\dfrac{21}{y} = \dfrac{18}{12}$

$y = 14$

$\dfrac{x}{20} = \dfrac{18}{12}$

$12x = 360$

$x = 30$

$\angle MNP \sim GHJK$

Ratio $= \dfrac{3}{2}$

15.

$\dfrac{x}{8} = \dfrac{6}{4}$

$x = 12$

$\dfrac{15}{y} = \dfrac{6}{4}$

$6y = 60$

$y = 10$

16.

$JKLM \sim NPQR$

ratio $= \dfrac{1}{2}$
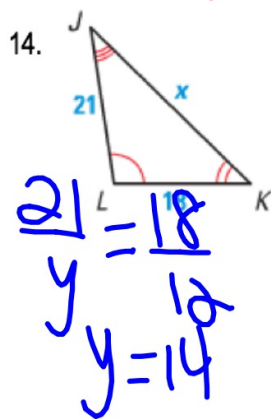
$\dfrac{x}{12} = \dfrac{11}{22}$

$x = 8$

$\dfrac{10}{y} = \dfrac{11}{22}$

$y = 20$

17.

$DEF \sim HGJ$

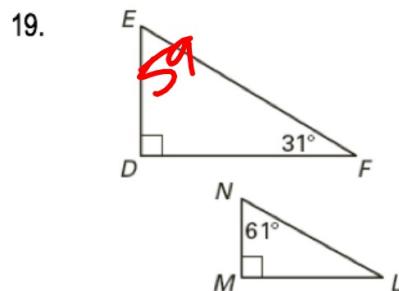ratio $= \dfrac{4}{3}$

$x = 24 \quad y = 12$
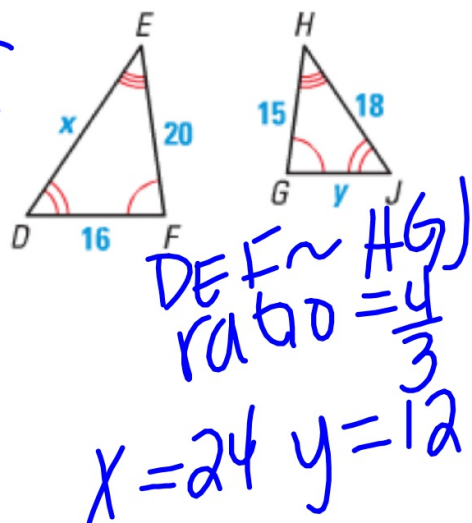
Are these triangles similar by the AA~ Postulate? Answer yes or no. If the triangles are similar, write a similarity statement

18.
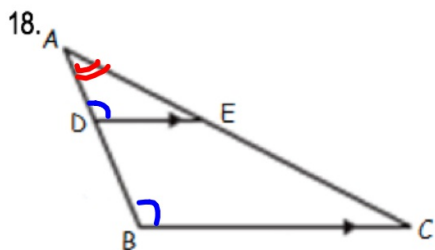
Similar: **YES** NO

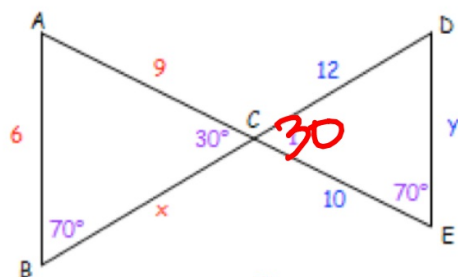$\triangle ADE \sim \triangle$ _ABC_

19.

Similar: YES **NO**

$\triangle EDF \sim \triangle$ _____

Find the angle measurements and set up proportions to find all missing side lengths. Notice the triangles are similar by AA~.

20. Flipped OR Twisted??

$m\angle 1 =$ __30__ $m\angle A =$ __80__ $m\angle D =$ __80__

Proportion to find **x**:

$$\frac{X}{10} = \frac{9}{12}$$
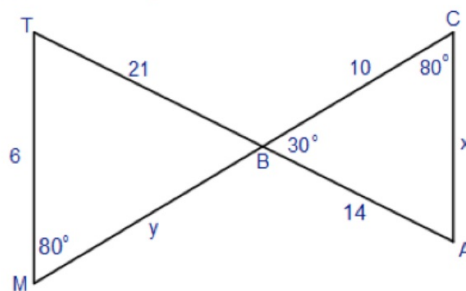
$$X = 7.5$$

Proportion to find **y**:

$$\frac{6}{y} = \frac{9}{12}$$

$$y = 8$$

21. Flipped OR Twisted??

$m\angle A =$ __70__ $m\angle TBM =$ __30__ $m\angle T =$ __70__

Proportion to find **x**:

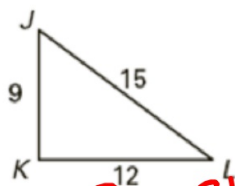$$\frac{6}{X} = \frac{21}{14}$$

$$X = 4$$

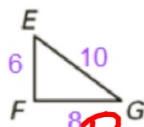Proportion to find **y**:

$$\frac{y}{10} = \frac{21}{14}$$

$$y = 15$$

Given two similar figures, find the scale factor and the ratio of the perimeters from the SMALL to the BIG.
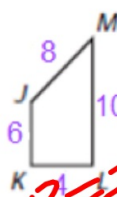
22.

J, 15, 9, K, 12, L

E, 6, 10, F, 8, G

$P = 36$ $P = 24$

Scale Factor:

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

Ratio of Perimeters:

$\dfrac{36}{24} = \dfrac{3}{2}$

23.

M, 8, J, 10, 6, K

R, 12, N, 15, 9, P, 6, Q
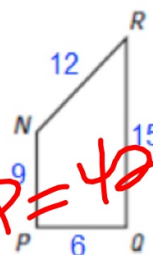
$P = 28$ $P = 42$

Scale Factor:

$\dfrac{8}{12} = \dfrac{2}{3}$

Ratio of Perimeters:

$\dfrac{28}{42} = \dfrac{2}{3}$

IXL #2 - due Friday, March 1st
P.1 Similarity Ratios
P.2 Similarity Statements