Honors GSE Geometry
Similarity Review CW

Name _____

Period _____

Directions: Show all work. No decimal answers unless otherwise stated. No mixed numbers.
(3 pts each blank unless stated otherwise)

Indicate whether the statement is true Always (A), Sometimes (S) or Never (N).

___S___1. If two triangles are similar, then they are congruent.

___A___2. If two triangles are congruent, then they are similar.

___S___3. Two right triangles are similar.

___A___4. Two equilateral triangles are similar.

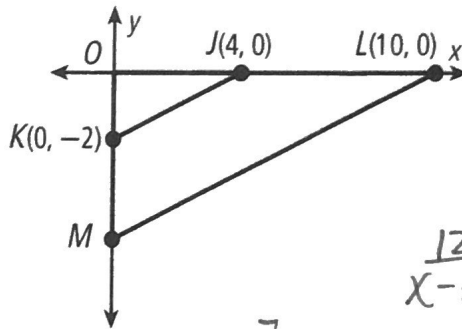5. If the scale factor of the areas of two similar polygons is 1:16, what is the ratio of the side lengths?

$$1:4$$

7) If the scale factor for a dilation is $\frac{5}{2}$, this dilation would produce a(n) ___enlargement___.

(reduction or enlargement)?

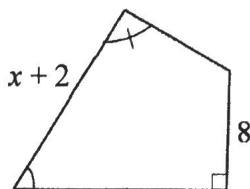$$\frac{10}{4} = 2.5$$

ΔJOK ~ ΔLOM. Find the coordinates of M.

8. M (_0_ , _5_)

Solve for x.

9. x = ___4.2̄___

10. x = ___7___

$$\frac{12}{x-3} = \frac{18}{x-1}$$

$$18x - 54 = 12x - 12$$

$$6x = 42$$

$$\boxed{x = 7}$$

(the Quadrilaterals are similar)

$$\frac{7}{x+2} = \frac{9}{8}$$

$$56 = 9x + 18$$

$$38 = 9x$$

$$4.2̄ = x$$
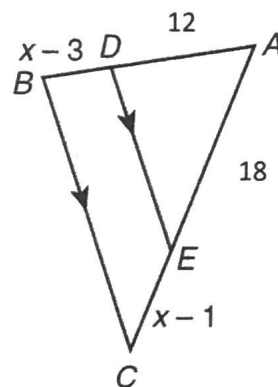
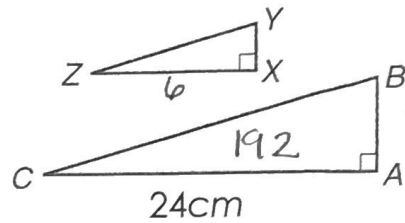△ABC ~ △XYZ. The area of △ABC is 192 cm². Include units!

Given $\dfrac{\text{area of } \triangle XYZ}{\text{area of } \triangle ABC} = \dfrac{1}{16}$, find the following:

1/4 _____ 11. ratio of the perimeters (as a reduction)

6 _____ 12. length of ZX
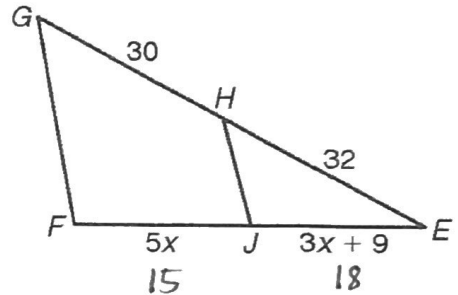
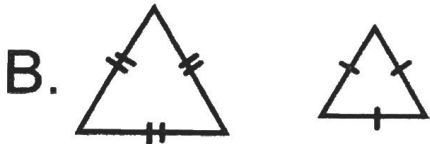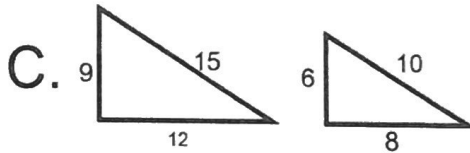**12** _____ 13. area of △XYZ

$\dfrac{192}{16} = 12$

False _____ 14. True or false? $\overline{GF} \parallel \overline{HJ}$ if x = 3. (Show work to support your answer.)

$\dfrac{18}{15} \overset{?}{=} \dfrac{32}{30}$

B, C _____ 15. Which pairs of polygons can be proved similar? Pick all that apply.

A.

B.

C.

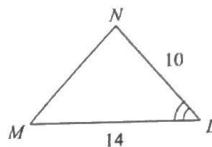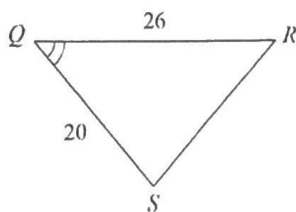$\dfrac{9}{6} = \dfrac{15}{10} = \dfrac{12}{8}$

1.5   1.5   1.5

48.6 16. △ABC has side lengths 14, 8, and 10.4. What is the perimeter of △DEF if △ABC ~ △DEF, and DEF is an enlargement of ABC with a similarity ratio of 2:3?

14 + 8 + 10.4 = 32.4 × 1.5

Determine if the Triangles are Similar, if so, write a similarity statement and state by which postulate.

NOT 17. $\Delta QRS \sim$ _____

$$\frac{26}{14} \neq \frac{20}{10}$$

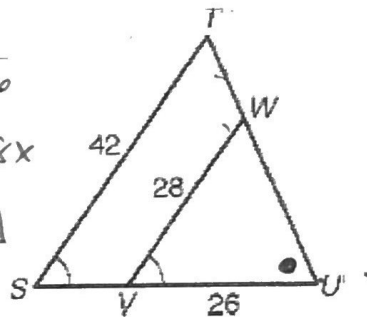_39_ 18. Complete the similarity statement: $\Delta STU \sim$ _?_ by _?_

_AA_

VWU

$$\frac{42}{28} = \frac{x}{26}$$

$$1092 = 28x$$

$$\boxed{39 = x}$$

What is the length of SU? ____39____

Given: $\Delta SVT \sim \Delta WYX$ with measures as shown, find WY and VT. Write your answers as improper fractions.

$$\frac{7}{x} = \frac{10}{8}$$
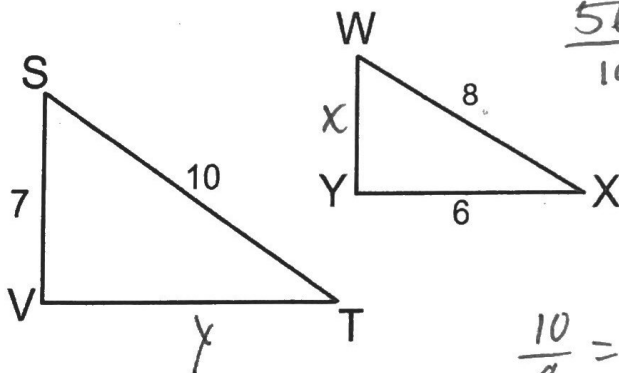
$$56 = 10x$$

$$\frac{56}{10} = x$$

$$\frac{28}{5}$$

WY= __28/5__ 19.

VT= __15/2__ 20.

$$\frac{10}{8} = \frac{Y}{6}$$

$$60 = 8y$$

$$\frac{60}{8} = y$$

$$\frac{15}{2}$$

_____154 ft._____ 21. Mr. Hammond looked at the plans for the new house he was building. The plans were drawn to a scale of ¼ in = 1 ft. He measured the size of a rectangular room on the plans and found it to be 2.75 in. by 3.5 in. What is the area of the room in square feet? (Include units)

11 ft. by 14

22. Chad is 3 feet from a lamppost that is 12 feet high. Chad is 5.5 feet tall. How long is Chad's shadow? Include units and round to the nearest 100th. (4pts)
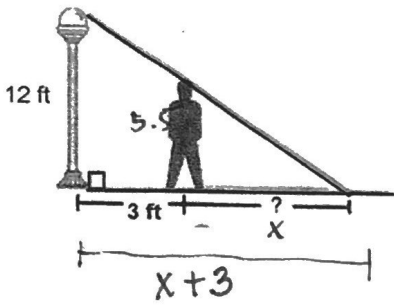
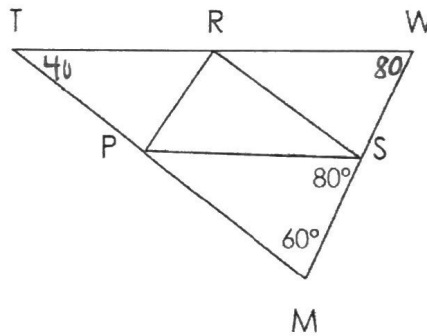$$\frac{12}{5.5} = \frac{x+3}{x}$$

$$12x = 5.5x + 16.5$$

$$6.5x = 16.5$$

$$\boxed{2.5 \text{ ft}}$$

12 ft

5.5

3 ft

?

x

x+3

R, P, and S are midpoints. Use the diagram for

_____40_____ 23. Find $m\angle T$.

T   R   W
40   80
   P
      80°
      S
   60°
   M

_____8_____ 24. Given: $a \| b \| c \| d$ $\dfrac{15}{5} = \dfrac{24}{8}$

and KP = 24, find KM.

a   F   K
   5
b   G   M   24
15
   2 H   O
c
   8
d   J   P
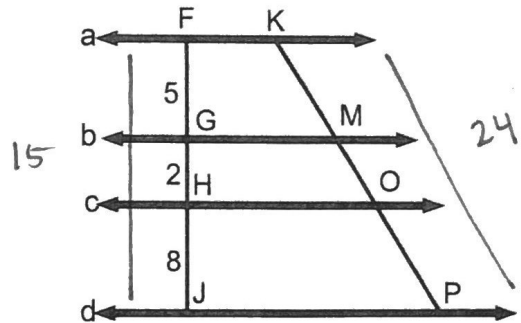
25. $\overline{DE}$, $\overline{EF}$, and $\overline{DF}$ are the midsegments of $\triangle ABC$. How does the perimeter of $\triangle DEF$ compare to the perimeter of $\triangle ABC$? Explain.
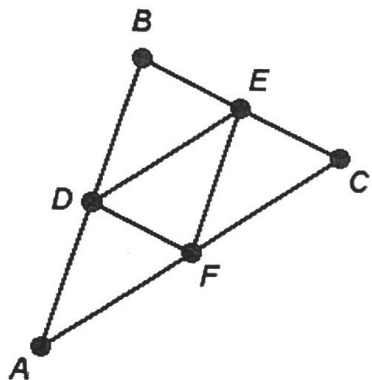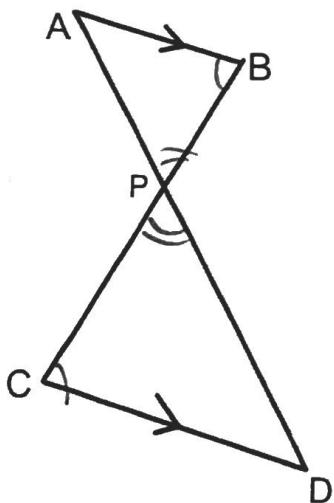
Perimeter

$\triangle DEF : \triangle ABC$

1 : 2

each side of Def is ½ of a side of ABC

26. Given: $\overline{CD} \parallel \overline{AB}$ Prove: $\triangle ABP \sim \triangle DCP$

AA