Unit 4 Extra Review If found please return to: Mrs. MacDonald

Due on Test Day (~~October 28th, 2017~~)

6.1 Ratios and Proportions

Solve the proportion

1. $\frac{14}{x} = \frac{7}{3}$

$7x = 42$

$x = 6$

2. $\frac{s}{4} = \frac{8}{3}$

$3s = 32$

$s = 10.67$

3. $\frac{4}{a-4} = \frac{2}{5}$

$2a - 8 = 20$

$2a = 28$

$a = 14$

4. $\frac{2}{3x-10} = \frac{2}{5}$

$6x - 20 = 10$

$6x = 30$

$x = 5$

5. $\frac{x+1}{4} = \frac{5}{10}$

$10x + 10 = 20$

$10x = 10$

$x = 1$

6. $\frac{3}{8} = \frac{9}{x}$

$3x = 72$

$x = 24$

Simplify the ratio

7. $\frac{34\text{cm}}{4\text{cm}} = \frac{17}{2}$

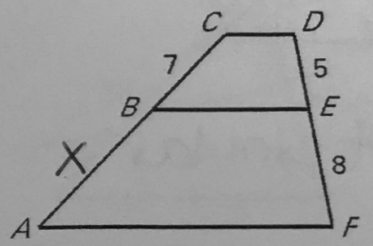
8. $\frac{10ft}{30in} = \frac{120in}{30in} = 4$

9. $\frac{50cm}{10m} = \frac{50cm}{1000cm} = \frac{1}{20}$

10. $\frac{2L}{50mL} = \frac{2000mL}{50mL} = 40$

6.2 Use Proportions to Solve Geometry Problems

11. Given $\frac{CB}{BA} = \frac{DE}{EF}$, find BA.

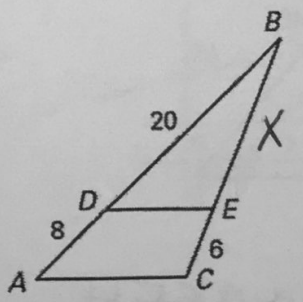


$\frac{7}{x} = \frac{5}{8}$

$5x = 56$

$x = 11.2$

12. Given $\frac{BD}{DA} = \frac{BE}{EC}$, find BE.

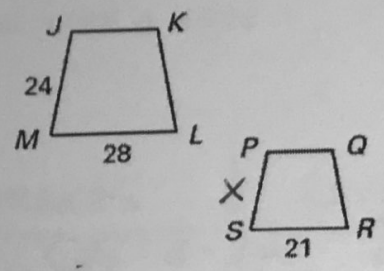


$\frac{20}{8} = \frac{x}{6}$

$8x = 120$

$x = 15$

13. Given $\frac{JM}{PS} = \frac{ML}{SR}$, find PS.

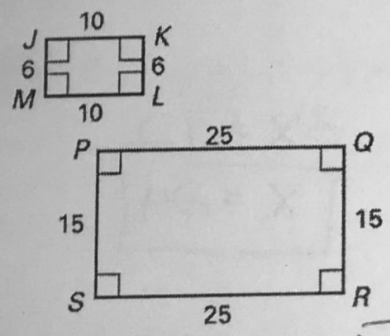


$\frac{24}{x} = \frac{28}{21}$ $28x = 504$ $x = 18$

6.3 Use Similar Polygons

Determine whether the polygons are similar. If they are write a similarity statement and find the scale factor.

14.



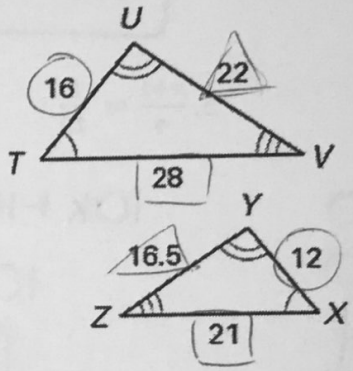
$\frac{6}{15} = \frac{2}{5}$ $\frac{6}{15} = \frac{2}{5}$

$\frac{10}{25} = \frac{2}{5}$ $\frac{10}{25} = \frac{2}{5}$

scale factor: 2/5

JKLM ~ PQRS

15.



$\frac{16}{12} = \frac{4}{3}$ $\frac{28}{21} = \frac{4}{3}$ $\frac{22}{16.5} = \frac{4}{3}$

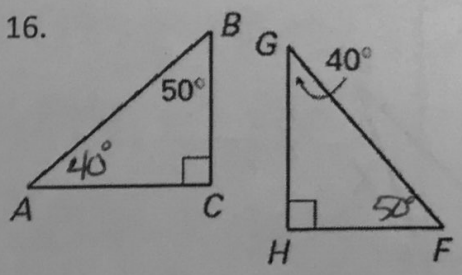
scale factor: 4/3

$\triangle TUV \sim \triangle XYZ$

6.4/6.5 AA, SSS, and SAS Similarity

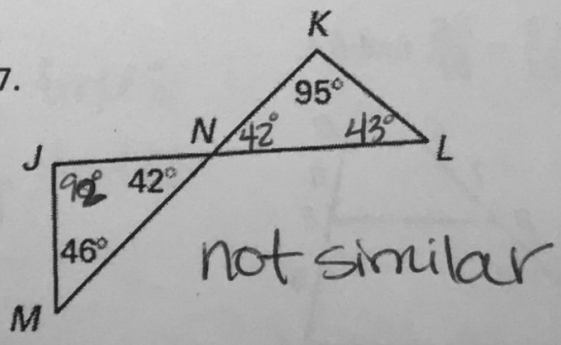
Determine if the triangles are similar. If they are state the reason why (AA, SSS, or SAS) and write a similarity statement.

16.



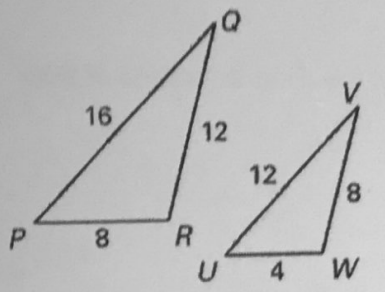
AA, $\triangle ABC \sim \triangle GFH$

17.



not similar

18.

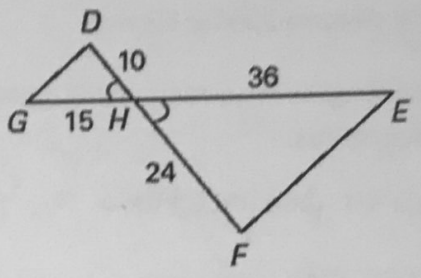


$\frac{16}{12} = \frac{4}{3}$ not similar

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

$\frac{8}{4} = 2$

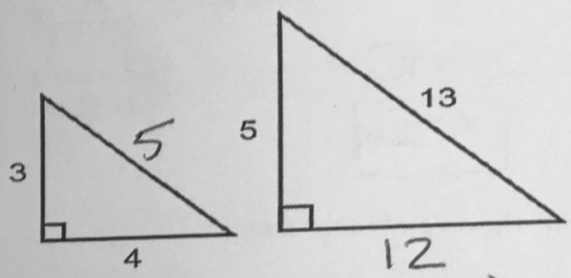
19.



$\frac{10}{24} = \frac{5}{12}$ SAS

$\frac{15}{36} = \frac{5}{12}$ $\triangle DGH \sim \triangle FEH$

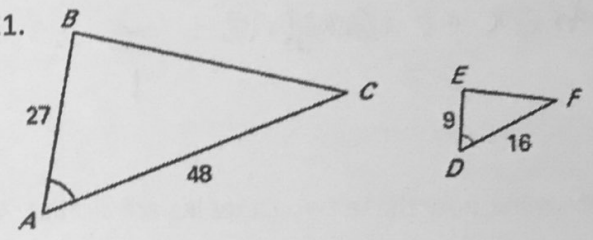
20.



(pythagorean theorem)

not similar

21.



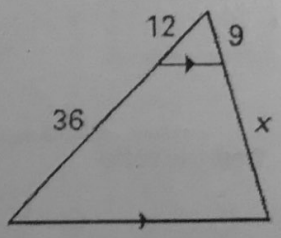
$\frac{27}{9} = 3$ SAS

$\frac{48}{16} = 3$ $\triangle ABC \sim \triangle DEF$

6.6 Use Proportionality Theorems

Find the value of x.

22.

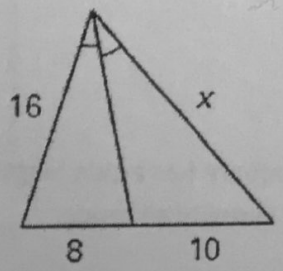


$\frac{12}{36} = \frac{9}{x}$

$12x = 324$

$x = 27$

23.

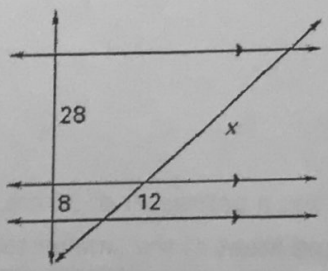


$\frac{16}{8} = \frac{x}{10}$

$8x = 160$

$x = 20$

24.



$\frac{28}{8} = \frac{x}{12}$

$8x = 336$

$x = 42$

11.3 Perimeter and Area of Similar Figures

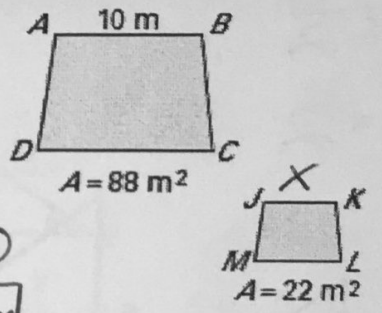
25. The ratio of the lengths of corresponding sides of two similar octagons is 8:9. Find the ratios of their perimeters and their areas.

ratio of perimeters = 8:9

ratio of areas = 64:81

26. Use the diagram to the right to find JK.

$ABCD \sim JKLM$



Area Ratio $\frac{88}{22} = \frac{4}{1}$

Area of lengths $= \frac{2}{1} = \frac{10}{x}$ $\quad 2x = 10$

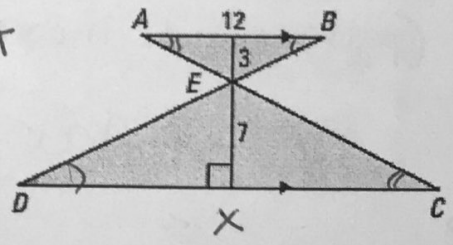
$x = 5m$

27. Determine how these two triangles are similar. And then find the area of both triangles.

Simplify all ratios.

AA

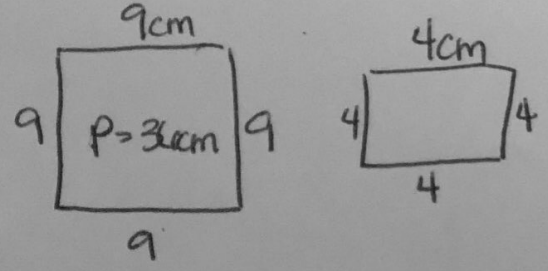
$\frac{3}{7} = \frac{12}{x}$ $\quad 3x = 84$ $\quad x = 28$



Area of $\triangle ABE = \frac{1}{2}(12)(3) = 18u^2$

Area of $\triangle CDE = \frac{1}{2}(28)(7) = 98u^2$

28. A square has a perimeter of 36 cm. A smaller square has a side length of 4 cm. Find the ratio perimeters and areas of the smaller to the larger. Simplify all ratios.

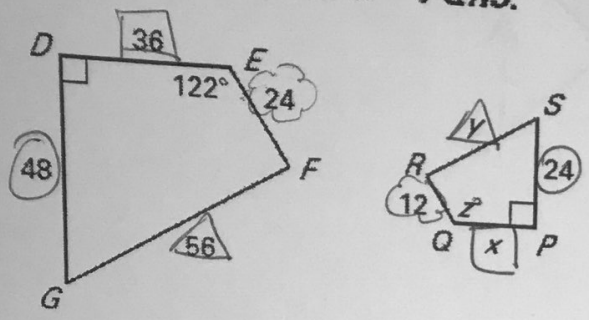


ratio of perimeters = $\frac{4}{9}$

ratio of areas = $\frac{16}{81}$

Super Awesome Extra Problems

29. **In the diagram, *DEFG* ~ *PQRS*.**



$\frac{48}{24} = \frac{36}{x}$ $48x = 864$ $x = 18$

$\frac{48}{24} = \frac{56}{y}$ $48y = 1344$ $y = 28$

Find the scale factor of *DEFG* to *PQRS*. 2:1

Find the value of *x*. 18

Find the value of *y*. 28

Find the value of *z*. 122°

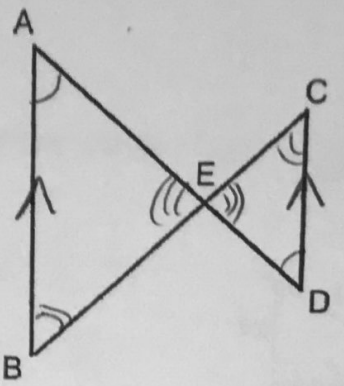
Find the perimeter of each polygon. $P_{DEFG} = 164$, $P_{PQRS} = 82$

Don't do #30 → typo → not similar → doesn't work

30. Below is a blueprint of a room and a table inside of the room (the room and table are similar is shape). The room has an area of 3840 ft^2. Find the dimension of the

31. Given: $\overline{AB} \parallel \overline{CD}$

Prove: $\Delta ABE \sim \Delta DCE$

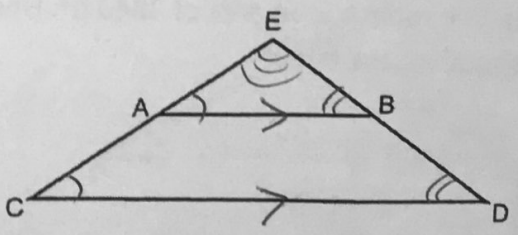


Statements	Reasons
$\overline{AB} \parallel \overline{CD}$	Given
$\angle A \cong \angle D$	Alt. Int. Angles
$\angle B \cong \angle C$	Alt. Int. Angles
$\angle AEB \cong \angle DEC$	Vertical Angles
$\Delta ABE \sim \Delta DCE$	AA

only 2 of these 3 steps needed

32. Given: $\overline{AB} \parallel \overline{CD}$

Prove: $\Delta ABE \sim \Delta CDE$



Statements	Reasons
$\overline{AB} \parallel \overline{CD}$	Given
$\angle EAB \cong \angle C$	Corresponding Angles
$\angle EBA \cong \angle D$	Corresponding Angles
$\angle E \cong \angle E$	Reflexive
$\Delta ABE \sim \Delta CDE$	AA

may need 2 of these 3 steps