

Geometry review 7

Must show ALL WORK and proportions

1. If $\frac{a}{b} = \frac{5}{3}$, then $3a =$ 5b

Solve the proportion.

2. $\frac{x-2}{2x-5} = \frac{x+3}{2x+4}$ x=7

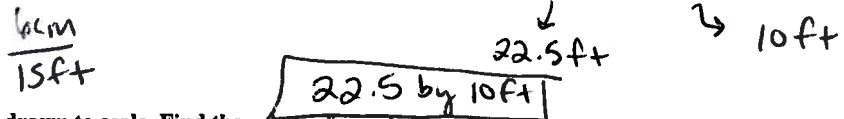
3. $\frac{2y-1}{5} = \frac{y}{12}$ y = $\frac{12}{19} \approx .6316$

4. $\frac{y-3}{3} = \frac{2}{y+2}$ x=4 ; x=-3

5. Solve the proportion. Leave answers in simplified radical form.

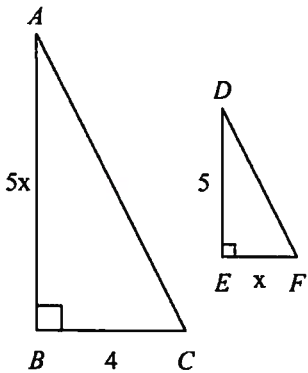
$\frac{2y}{10} = \frac{15}{y}$ y = $\sqrt{75} \Rightarrow y = 5\sqrt{3}$

6. On a blueprint, the scale indicates that 6 cm represent 15 feet. What are the dimensions of a room that is 9 cm long and 4 cm wide on the blueprint?



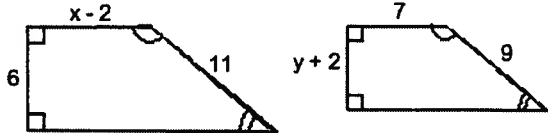
The polygons are similar, but not necessarily drawn to scale. Find the values of x and y.

7. Triangles ABC and DEF are similar. Find the lengths of AB and EF.



x=2

8. Show the proportions used and solve for x and y.



$x = 10.5 \rightsquigarrow \frac{95}{9}$
 $y = 2.90 \rightsquigarrow \frac{32}{11}$

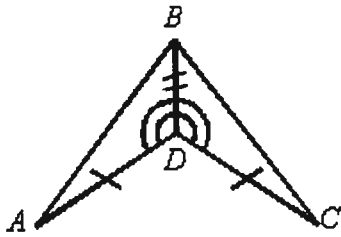
9. You are reducing a map of dimensions 2 ft by 3 ft to fit to a piece of paper 8 in. by 10 in. What are the dimensions of the largest possible map that can fit on the page?

Thinking 8 in by ?
 OR
 ? by 10 in

6 $\frac{2}{3}$ in by 10 in

State whether the triangles are similar. If so, write a similarity statement and the postulate or theorem you used.

10.

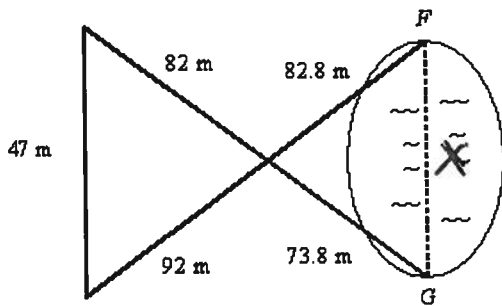


Congruent not similar

(or)

SAS ~ $\triangle ABD \sim \triangle CBD$

11. Campsites F and G are on opposite sides of a lake. A survey crew made the measurements shown on the diagram. How do they know that the two triangles are similar? What is the distance between the two campsites? The diagram is not to scale.



SAS ~ Ratio (10:9)

$X = 42.3$ m

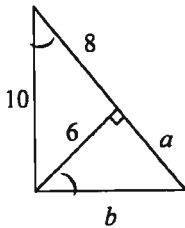
Find the geometric mean of the pair of numbers.

12. 175 and 7

$\sqrt{1225} = 35$

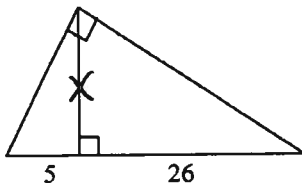
Solve for a and b.

13.



$a = 4.5$
 $b = 7.5$

14. Find the length of the altitude drawn to the hypotenuse. The triangle is not drawn to scale.



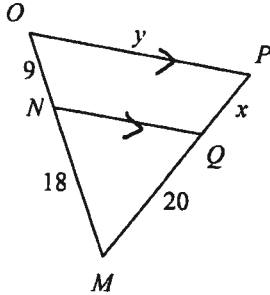
$\frac{5}{x} = \frac{x}{26}$

$\sqrt{x^2} = \sqrt{130}$

$x = \sqrt{130}$

$\sqrt{130} = \sqrt{10 \cdot 13} = \sqrt{10} \cdot \sqrt{13}$

15. Given that $\overline{OP} \parallel \overline{NQ}$ tell the theorem or postulate that proves two triangles similar. Write the triangle similarity statement. Find the values of x and y .

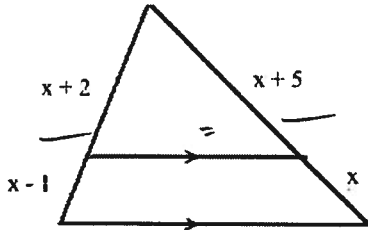


Not enough info for (y)

Side-Splitter Thm
 $\triangle MNQ \sim \triangle MOP$

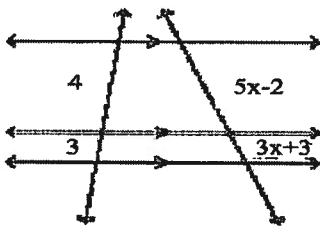
$x = 10$

16. Write a proportion and solve for x .



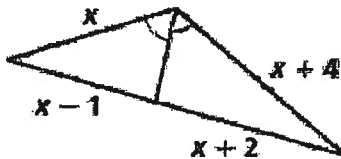
$x = 2.5$

17. Write a proportion and solve for x .



$x = 6$

18. Find x to the nearest tenth.



$x = 4$

19. What is the product of the two solutions? (Use quadratic formula.)

$3x^2 + 9x - 30 = 0$

$x = -5$
 $x = 2$

$-5 \cdot 2 = -10$

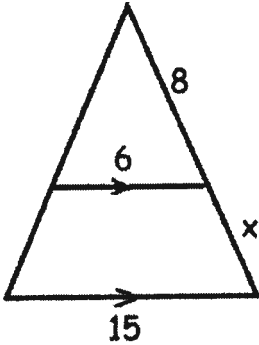
20. Simplify. Be sure to rationalize the denominator.

a. $\sqrt{96}$
 $\sqrt{3 \cdot 3 \cdot 2 \cdot 2 \cdot 2}$
 $4\sqrt{6}$

b. $\frac{\sqrt{28}}{\sqrt{98}} = \frac{\sqrt{2}}{\sqrt{7}}$
 Reduce $\frac{\sqrt{2} \cdot \sqrt{7}}{\sqrt{7} \cdot \sqrt{7}} = \frac{\sqrt{14}}{7}$

c. $\frac{\sqrt{50}}{\sqrt{128}} = \frac{\sqrt{25}}{\sqrt{64}} = \frac{5}{8}$

21. Aiden set up this proportion to solve for x in the picture below.
 If his proportion is correct, use it to solve for x.
 If his proportion is not correct, write the correct proportion and solve for x.

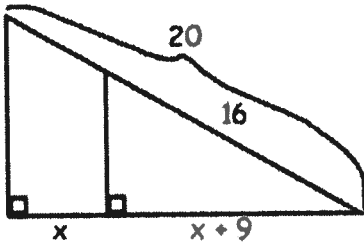


$$\frac{8}{6} = \frac{8+x}{15}$$

correct

$$x=12$$

22. Samantha set up this proportion to solve for x in the picture below.
 If her proportion is correct, use it to solve for x.
 If her proportion is not correct, write the correct proportion and solve for x.



$$\frac{16}{x+9} = \frac{20}{x^2+9}$$

$$2x+9$$

incorrect

$$x=3$$

23. What are the triangle ~~similarity~~ theorems/postulates?

AA ~ ^{similarity}
 SAS ~ SSS ~

Now go to the following website to check your answers. Use pen and give yourself a score for the percent correct.

<http://mssnydersmathpage.weebly.com/> elymathpage.wordpress.com

<http://nvhstruelove-tedham.weebly.com/geometry> <http://ottenmath.weebly.com/>

Redo any problems that you missed on a separate piece of paper and hand that in with this packet.

You may also take a multiple choice practice test at phschool.com using webcode aua-0752.

Remember to show work for
ALL problems!