Name Answers Date

Chapter 7 – Review

Identify each statement as true (T) or false (F). For many of the problems, it would help (but not necessary) to make a drawing or to do a counterexample.

1) If the three sides of one triangle are proportional to the three sides of another triangle, then the two triangles are similar. T

2) If two angles of one triangle are congruent to two angles of another triangle, then the two triangles are similar. T

3) If two sides of one triangle are proportional to the sides of another triangle, then the two triangles are similar. F

4) If the four angles of one quadrilateral are congruent to the four corresponding angles of another quadrilateral, then the two quadrilaterals are similar. F

5) An angle bisector in a triangle divides the opposite side into two segments whose lengths are in the same ratio as the corresponding adjacent sides. T

6) If two triangles are similar, then their corresponding altitudes, corresponding medians, and corresponding angle bisectors are proportional to their corresponding sides. T

7) If a line parallel to one side of a triangle passes through the other two sides, then it divides them proportionally. T

8) If a line cuts two sides of a triangle proportionally, then it is parallel to the third side. T

9) If two or more lines pass through two sides of a triangle parallel to the third side, then they divide the two sides equally. F

proportionally

Solve. Show all work.

10) $\frac{x}{33} = \frac{4}{7}$

$7x = 132$

$\frac{7x}{7} = \frac{132}{7}$

$x \approx 18.9$

11) $\frac{3-2b}{4} = \frac{3}{2}$

$6 - 4b = 12$

$-4b = 6$

$b = -1.5$

12) $\frac{7}{2a+8} = \frac{1}{a-1}$

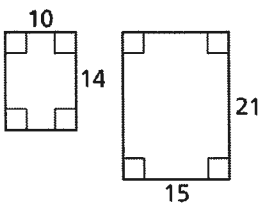
$7(a-1) = 2a+8$

$7a - 7 = 2a + 8$

$5a = 15$

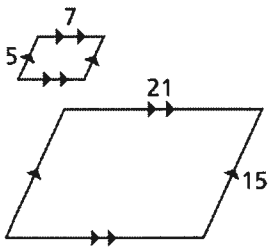
$a = 3$

Determine whether the polygons are similar.

13) 

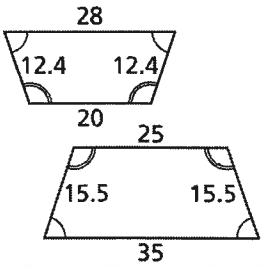
$\frac{10}{15} = \frac{14}{21}$

Yes

14) 

$\frac{5}{15} = \frac{7}{21}$

Yes

15) 

$\frac{20}{25} = \frac{28}{35} = \frac{12.4}{15.5}$

Yes

16) In the diagram, ABCD ~ EFGH. Find the following: (Show work)

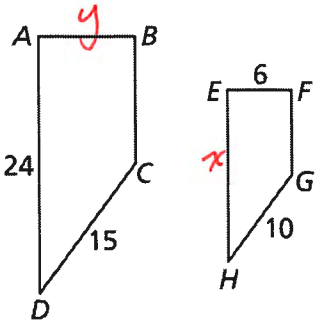
a) Scale factor = $\frac{3}{2}$

b) EH = 16

$\frac{15}{10} = \frac{24}{x}$ $\quad \frac{15}{10}$

c) AB= 9

$\frac{15}{10} = \frac{y}{6}$

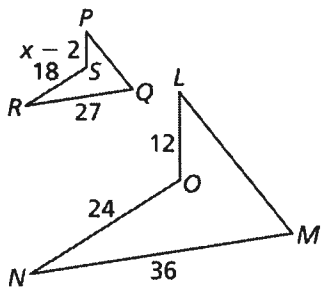


17) In the diagram, ABCD ~ EFGH. Find the following: (Show work)

a) $\angle P \cong$ $\angle L$

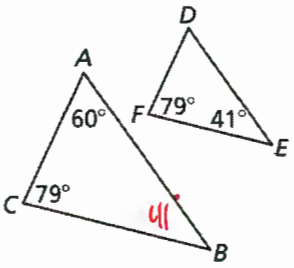
b) $\angle M \cong$ $\angle Q$

c) $\frac{MN}{RQ} = \frac{LM}{?}$ PQ



Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.

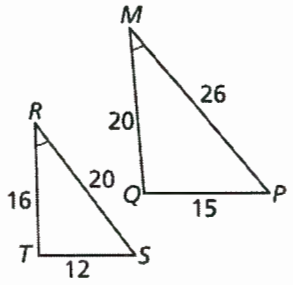
18)



$\triangle ABC \sim \triangle DEF$

AA

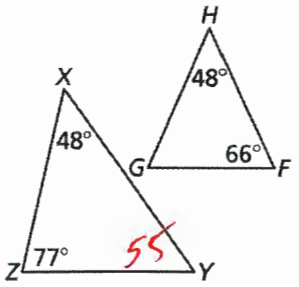
19)



$\frac{16}{20} \neq \frac{20}{26} \neq \frac{12}{15}$

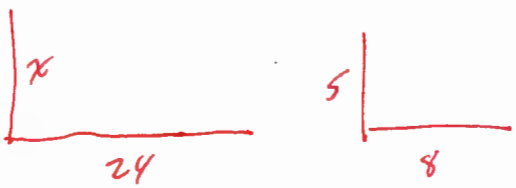
No

20)



No

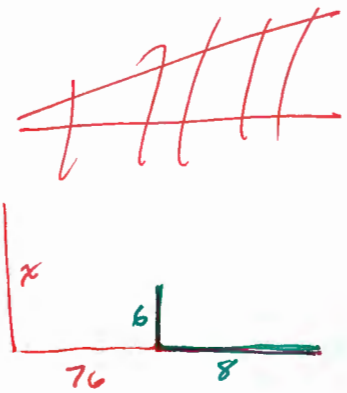
21) Your geometry class goes outside to measure the height of the school's flagpole. A student who is 5 feet tall stands up straight and casts a shadow that is 8 feet long. At the same time the flagpole casts a shadow that is 24 feet long. What is the height of the flagpole?



$\frac{x}{5} = \frac{24}{8}$

$x = 15$ feet

22) The Cardon cactus found in the Sonoran Desert in Mexico is the tallest type of cactus in the world. Marco stand 76 feet from the cactus so that the tip of his shadow coincides with the tip of the cactus' shadow. Marcus is 6 feet tall and his shadow is 8 feet long. How tall is the Cardon cactus?

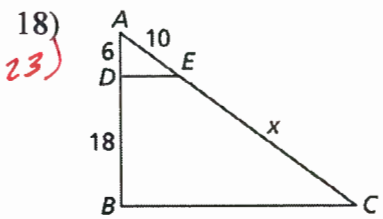


$\frac{x}{6} = \frac{84}{8}$

$x = 63$ ft

Find the value of x that makes the triangles similar

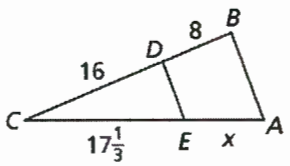
18) 23)



$\frac{6}{18} = \frac{10}{x}$

$x = 30$

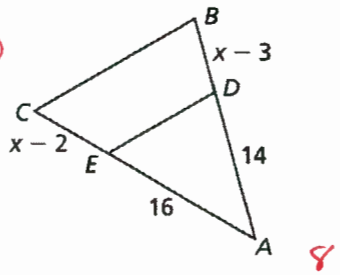
19) 24)



$\frac{16}{8} = \frac{17\frac{1}{3}}{x}$

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

20) 25)



$\frac{7}{x-3} = \frac{16}{x-2}$

$7(x-2) = 8(x-3)$

$7x - 14 = 8x - 24$

$10 = x$

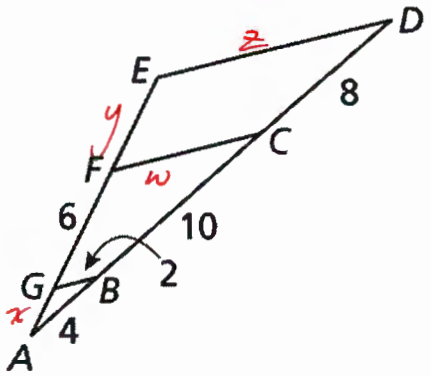
Determine the length of the segment

21) $\overline{AG}$

26) $\frac{x}{6} = \frac{4}{10}$

$x = 2.4$

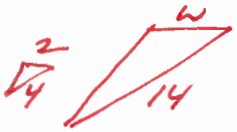
$AG = 2.4$



22) $\overline{FC}$

27) $\frac{4}{14} = \frac{2}{w}$

$w = 7$



$FC = 7$

23) $\overline{FE}$

28) $\frac{6}{y} = \frac{10}{8}$

$y = 4.8$

$FE = 4.8$

24) $\overline{ED}$

29)

$\frac{4}{22} = \frac{2}{z}$

$z = 11$

$ED = 11$

25) $\overline{AE}$

30) $AG + GF + FE = AE$

$2.4 + 6 + 4.8 = 13.2$

$AE = 13.2$

26) $\overline{AD}$

31) $4 + 10 + 8 = 22$

$AD = 22$