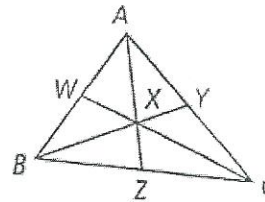


Geometry 21: 5.1-5.4, 5.6 Extra Practice

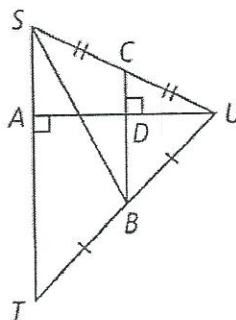
5.4 In $\triangle ABC$, X is the centroid.

1. If $CW = 15$, find CX and XW .
2. If $BX = 8$, find BY and XY .
3. If $XZ = 3$, find AX and AZ .

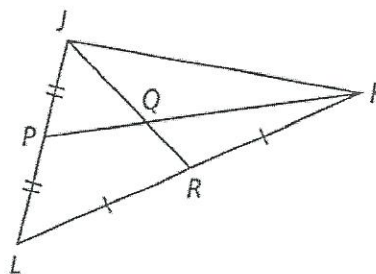


In Exercises 7–10, name each segment.

7. a median in $\triangle STU$
8. an altitude in $\triangle STU$
9. a median in $\triangle SBU$
10. an altitude in $\triangle CBU$



11. Q is the centroid of $\triangle JKL$. $PK = 9x + 21y$. Write expressions to represent PQ and QK .



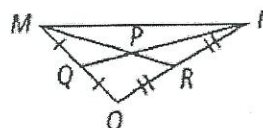
Draw a triangle that fits the given description. Then construct the centroid and the orthocenter.

12. equilateral $\triangle CDE$

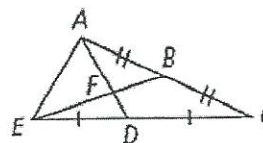
13. acute isosceles $\triangle XYZ$

21. In which kind of triangle is the centroid at the same point as the orthocenter?

22. P is the centroid of $\triangle MNO$. $MP = 14x + 8y$. Write expressions to represent PR and MR .



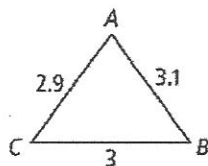
23. F is the centroid of $\triangle ACE$. $AD = 15x^2 + 3y$. Write expressions to represent AF and FD .



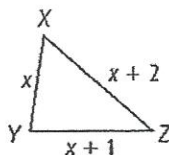
24. Explain where the orthocenter is located on a right triangle and why. (draw a diagram to demonstrate as well)

5.6 - List the angles in order from least to greatest for #3-4.

3.

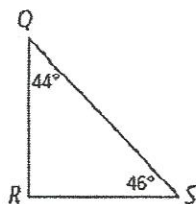


4.

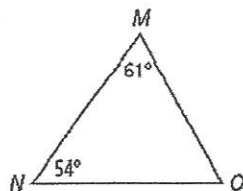


For Exercises 7-10, list the sides of each triangle in order from shortest to longest.

7.



8.

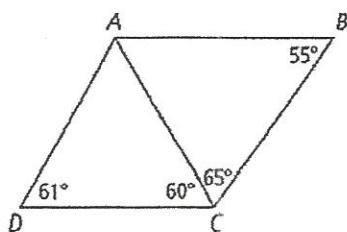


9. $\triangle ABC$, with $m\angle A = 99$, $m\angle B = 44$, and $m\angle C = 37$

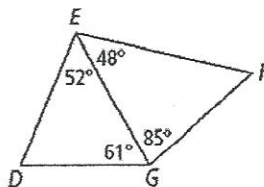
10. $\triangle ABC$, with $m\angle A = 122$, $m\angle B = 22$, and $m\angle C = 36$

Determine which side is shortest in the diagram.

13.



14.



Can a triangle have sides with the given lengths? Explain.

15. 8 cm, 7 cm, 9 cm

16. 7 ft, 13 ft, 6 ft

17. 20 in., 18 in., 16 in.

18. 3 m, 11 m, 7 m

Algebra The lengths of two sides of a triangle are given. Describe the possible lengths for the third side.

19. 5, 11

20. 12, 12

21. 25, 10

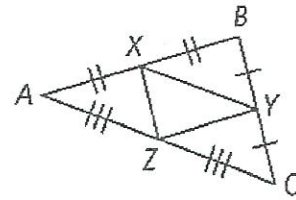
24. **Algebra** List the sides in order from shortest to longest in $\triangle ABC$, with $m\angle A = 80$, $m\angle B = 3x + 5$, and $m\angle C = 5x - 1$.

25. **Error Analysis** A student draws a triangle with a perimeter 36 cm. The student says that the longest side measures 18 cm. How do you know that the student is incorrect? Explain.

5.1-5.4, 5.6 Mixed Review

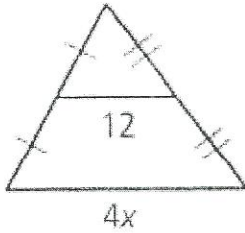
1. Using the diagram to the right, answer the following:

- $\overline{XZ} \parallel$ _____
- $\overline{AB} \parallel$ _____
- $\angle A \cong$ _____
- $\overline{BY} \cong$ _____ \cong _____
- $2(ZY) =$ _____

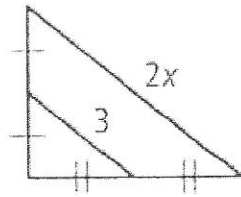


2. Find the value of x .

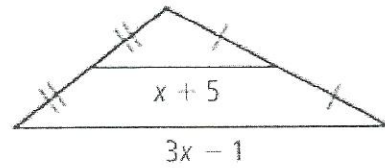
a.



b.



c.



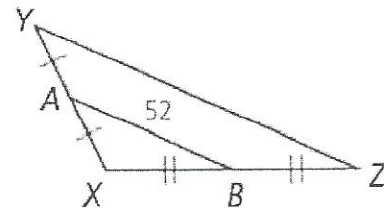
3. Use the figure below to answer the following questions.

a. Find YZ .

b. $AX = 26$ and $BZ = 36$. Find the perimeter of $\triangle XYZ$.

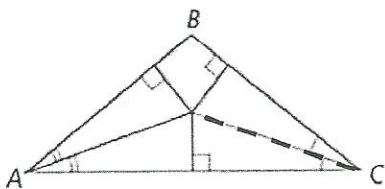
c. Which angle is congruent to $\angle XBA$? How do you know?

d. If $m\angle Y = 74^\circ$ and $m\angle ABX = 21^\circ$, what is $m\angle X$?

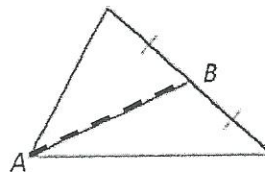


4. For the following triangles, state if the dotted line is a *perpendicular bisector*, an *angle bisector*, a *median*, an *altitude* or *none of these*. Explain.

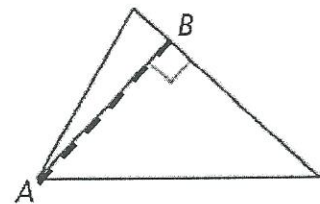
a.



b.



c.



5. Explain the similarities and differences between an triangle's altitude and median.

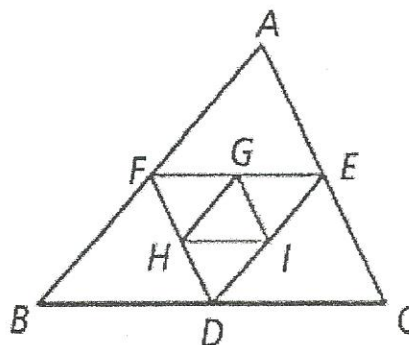
6. In a(n) _____ triangle, all the special points of concurrency are the same point.

7. The sides of $\triangle DEF$ are the midsegments of $\triangle ABC$. The sides of $\triangle GHI$ are the midsegments of $\triangle DEF$.

a. Which sides, if any, of $\triangle GHI$ and $\triangle ABC$ are parallel?

b. What are the relationships between the side lengths of $\triangle GHI$ and $\triangle ABC$?

c. If $FE = 12$, $DE = 10$ and $AE = 13.5$, find the perimeter of $\triangle DEF$ and $\triangle ABC$.



8. In $\triangle RST$, $m\angle R = 70$ and $m\angle S = 80$. List the side of $\triangle RST$ in order from shortest to longest.

9. Is it possible for a triangle to have sides with the given lengths? Explain.

a. 5 in, 8 in, 15 in

b. 10 cm, 20 cm, 12 cm

10. The lengths of two sides of a triangle are 12 ft and 13 ft. Find the range of possible lengths for the third side.

11. The lengths of two sides of a triangle are 21 cm and 15 cm. Find the range of possible lengths for the third side.

12. Solve for x .

