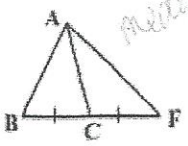
Name ANSWERS Period____Date_____

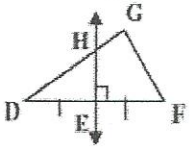
Geometry: 5.3-5.4 and 5.6 MORE Practice

Name the special segment for #1-4

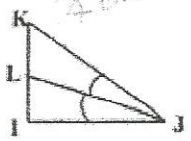
1) $\overline{AC}$ median



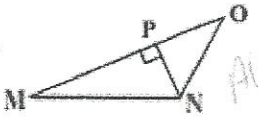
2) $\overline{HE}$ ⊥ bisector



3) $\overline{JL}$ ∠ bisector



4) $\overline{PN}$ altitude



5) Draw a triangle with an altitude outside the triangle.

7. Underline the correct word or phrase to complete each sentence.

a. Three or more lines that intersect at a common point are called (parallel/perpendicular/concurrent) lines.

b. Any point on the perpendicular bisector of a segment is (parallel to/congruent to/ equidistant from) the endpoints of the segment.

c. A(n) (altitude/angle bisector/median/perpendicular bisector) of a triangle is a segment drawn from a vertex of a triangle perpendicular to the line containing the opposite side.

d. The point of concurrency of the three perpendicular bisectors of a triangle is called the (orthocenter/circumcenter/incenter/centriod).

Circle the letter with the name of the correct point of concurrency.

5. The three altitudes of a triangle intersect at the d.

(a) circumcenter (b) incenter (c) centroid (d) orthocenter

6. The three medians of a triangle intersect at the C.

(a) circumcenter (b) incenter (c) centroid (d) orthocenter

7. The three perpendicular bisectors of a triangle intersect at the A.

(a) circumcenter (b) incenter (c) centroid (d) orthocenter

8. The three angle bisectors of a triangle intersect at the b.

(a) circumcenter (b) incenter (c) centroid (d) orthocenter

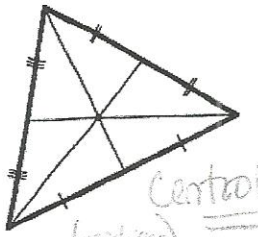
9. It is equidistant from the three vertices of the triangle.

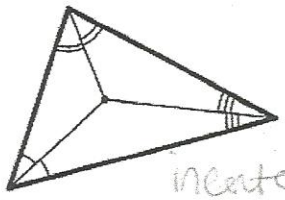
(a) circumcenter (b) incenter (c) centroid (d) orthocenter

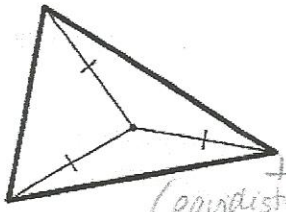
10. It is equidistant from the three sides of the triangle.

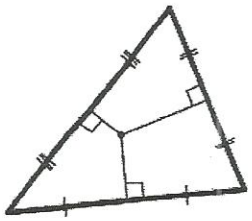
(a) circumcenter (b) incenter (c) centroid (d) orthocenter

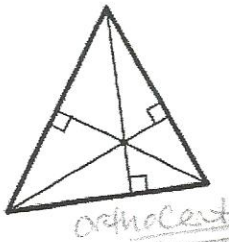
Name the point of concurrency shown.

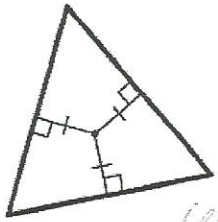
12. 
Centroid (medians)

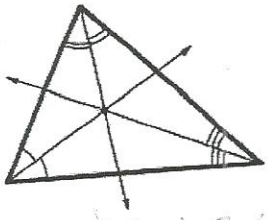
13. 
incenter (∠ bisectors)

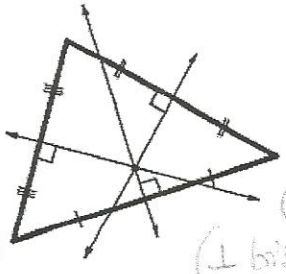
14. 
⊥ bisectors are (equidistant from vertices)
~~⊥ bisectors~~ circumcentr

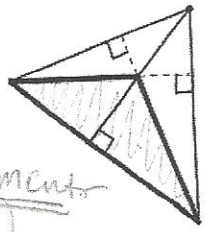
15. 
Circumcentr (⊥ bisectors)

16. 
orthocentr (altitudes)

17. 
incentr (equidistant from sides, ∠ bisectors)

18. 
incentr (∠ bisectors)

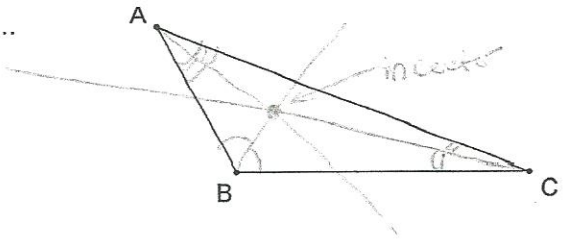
19. 
circumcentr (⊥ bisectors)

20. 
orthocentr (altitudes)

Be sure to MARK your diagrams for #21-23;

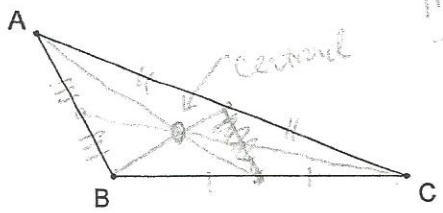
21. Construct the incenter of the triangle …

∠ bisectors



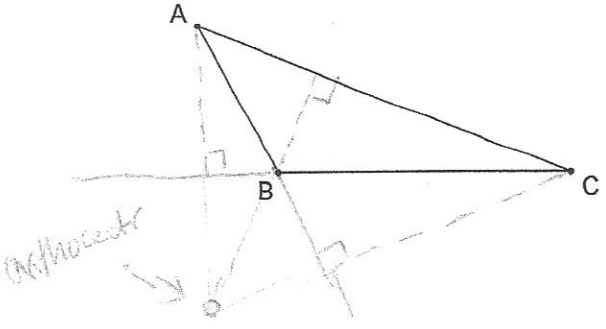
22. Construct the centroid of the triangle …

medians



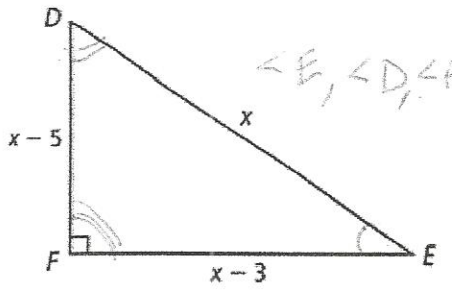
23. Construct the orthocenter of the triangle …

altitudes



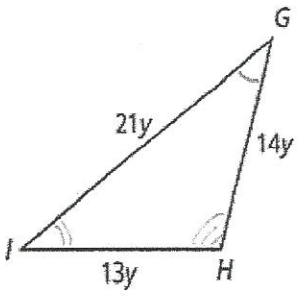
For Exercises 3-5, list the angles of each triangle in order from smallest to largest.

3.



∠E, ∠D, ∠F

4.

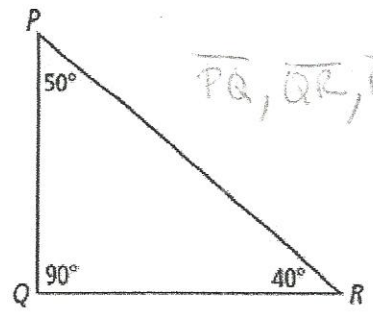


∠G, ∠I, ∠H

5. ΔXYZ, where $XY = 25$, $YZ = 11$, and $XZ = 15$

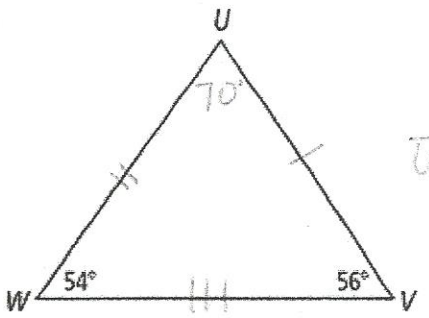
For Exercises 6–8, list the sides of each triangle in order from shortest to longest.

6.



$\overline{PQ}, \overline{QR}, \overline{PR}$

7.



$\overline{UV}, \overline{WU}, \overline{WV}$

8. ΔMNO, where $m\angle M = 56$, $m\angle N = 108$, and $m\angle O = 16$ $\overline{MN}, \overline{NO}, \overline{MO}$

9. **Algebra** List the sides in order from shortest to longest in ΔXYZ, with $m\angle X = 50$, $m\angle Y = 5x + 10$, and $m\angle Z = 5x$.

$50 + 5x + 10 + 5x = 180$
$10x + 60 = 180$
$10x = 120$
$x = 12$

$m\angle x = 50$
$m\angle y = 70$
$m\angle z = 60$

$\overline{yz}, \overline{xy}, \overline{xz}$

10. What is the range of possible side lengths for the missing side of the triangle with the following sides?

4, 9, ___x___ $5 < x < 13$

11. What is the range of possible side lengths for the missing side of the triangle with the following sides?

42, 13, ___x___ $29 < x < 55$

Can the following side lengths be the sides of a triangle;

12. 4, 12, 10 $4 + 10 = 14$ yes

13. 3.89, $\frac{16}{5}$, $\sqrt{10}$ 3.2, 3.16 $3.2 + 3.16$ $6.36 > 3.89$ yes

14. 80, 45, 20 $45 + 20 = 65$ $65 < 80$ NO

15. 32, 65, 33 $32 + 33 = 65$ $65 = 65$ NO