

Name

Answers

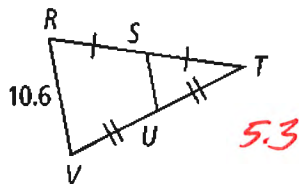
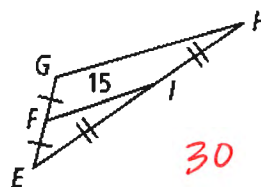
Date

Chapter 5 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.

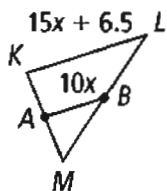
- 1) If a point is equally distant from the endpoints of a segment, then it must be the midpoint of the segment. *It can be on the perpendicular bisector* F
- 2) The incenter of a triangle is the point of intersection of the three angle bisectors. T
- 3) The centroid of a triangle is the point of intersection of the three medians. T
- 4) The orthocenter of a triangle is the point of intersection of the three altitudes. T
- 5) The circumcenter is the point of intersection of the three perpendicular bisectors. T
- 6) The incenter can be outside a triangle. F
- 7) The centroid is equidistant to the vertices of a triangle. F
- 8) The orthocenter of a triangle divides an altitude into a 2:1 ratio. F
- 9) The incenter helps draw an inscribed circle in a triangle. T
- 10) The points equidistant to the sides of an angle lie on the perpendicular bisector. F
- 11) The incenter is equidistant to the sides of a triangle. T
- 12) The midsegment is the segment connecting the midpoints of two different sides of a triangle. T
- 13) The midsegment is perpendicular and half the measure of the third side of a triangle. F
- 14) In a triangle, the longest side is opposite the smallest angle, and the shortest side is opposite the biggest angle. F
- 15) In a triangle, the sum of two sides must be greater than the third side. T

Find the length of the indicated segment.

16) SU 17) GH 

In each triangle, \overline{AB} is a midsegment. Find the value of x .

18)

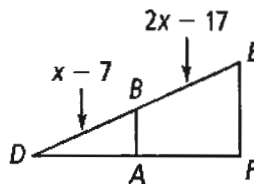


$$15x + 6.5 = 20x$$

$$6.5 = 5x$$

$$\boxed{1.3 = x}$$

19)

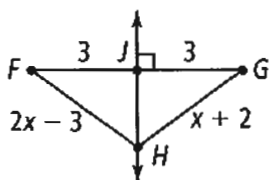


$$x - 7 = 2x - 17$$

$$\boxed{10 = x}$$

Find the value of x .

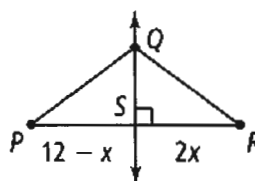
20)



$$2x - 3 = x + 2$$

$$\boxed{x = 5}$$

21)

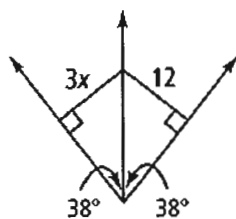


$$12 - x = 2x$$

$$12 = 3x$$

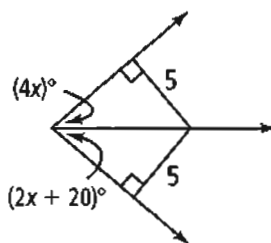
$$\boxed{4 = x}$$

22)



$$\boxed{x = 4}$$

23)

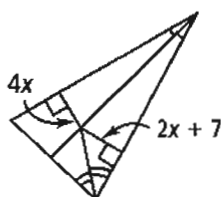


$$4x = 2x + 20$$

$$2x = 20$$

$$\boxed{x = 10}$$

24)

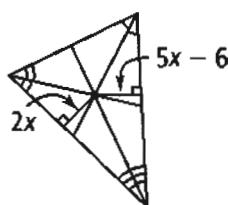


$$4x = 2x + 7$$

$$2x = 7$$

$$\boxed{x = 3.5}$$

25)



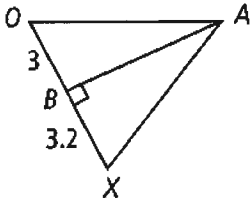
$$2x = 5x - 6$$

$$-3x = -6$$

$$\boxed{x = 2}$$

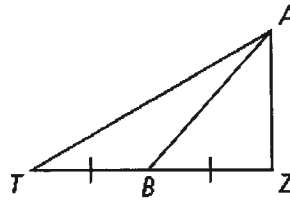
Determine whether \overline{AB} is a *median*, an *altitude*, or *neither*.

26)



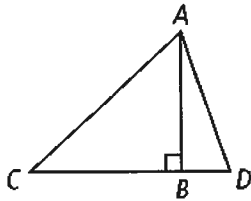
~~Altitude~~
Altitude

27)



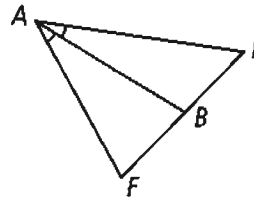
Median

28)



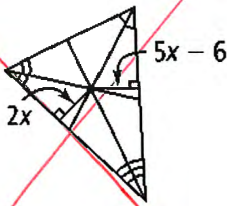
Altitude

29)

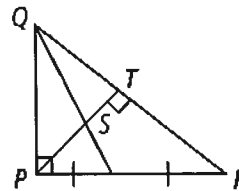


Neither

30) Name the centroid



31) Name the orthocenter



P

In $\triangle VYX$, the centroid is Z. Use the diagram to solve the problems.

32) If $XR = 24$, find XZ and ZR .

$$XZ = 16$$

$$ZR = 8$$

33) If $XZ = 44$, find XR and ZR .

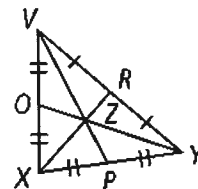
$$XR = 66$$

$$ZR = 22$$

34) If $VZ = 14$, find VP and ZP .

$$VP = 21$$

$$ZP = 7$$



Name each segment.

35) a median in $\triangle DEF$

\overline{DL}

36) an altitude in $\triangle DEF$

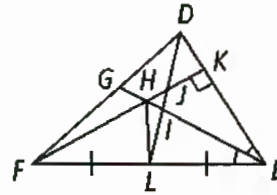
\overline{FK}

37) a median in $\triangle EHF$

\overline{HL}

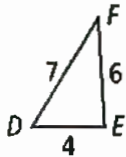
38) an altitude in $\triangle HEK$

\overline{HK}
 \overline{EK}



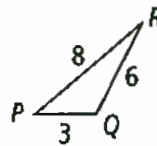
Which are the largest and smallest angles of each triangle?

39)



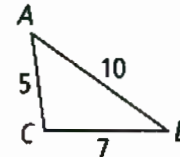
largest - $\angle E$
smallest - $\angle F$

40)



largest - $\angle Q$
smallest - $\angle R$

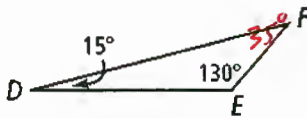
41)



largest - $\angle C$
smallest - $\angle B$

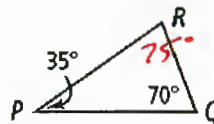
which are the largest and smallest sides of each triangle. Sorry :)

42)



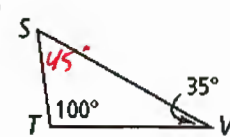
largest - \overline{DF}
smallest - \overline{EF}

43)



largest - \overline{PQ}
smallest - \overline{RQ}

44)



largest - \overline{SV}
smallest - \overline{ST}

45) Can a triangle have side lengths 2, 3, and 7?

No

46) Can a triangle have side lengths 12, 13, and 7?

Yes

47) Can a triangle have side lengths 6, 8, and 9?

Yes

48) Two sides of a triangle are 5 cm and 3 cm. What could be the length of the third side?

$2 < x < 8$

49) Two sides of a triangle are 15 ft and 12 ft. What could be the length of the third side?

$3 < x < 27$

Indicate what constructions help create the following points of concurrency.

50) Orthocenter → Altitude

51) Incenter → Angle Bisector

52) Centroid → Median

53) Circumcenter → Perpendicular Bisector

54) In order to draw a **circumscribed** circle around a triangle you need the circumcenter.

55) In order to draw an **inscribed** circle in a triangle you need the incenter.

56) Birdy McFly is designing a large triangular hang glider. She needs to locate the center of gravity for her glider. Which point does she need to locate?

Centroid

57) Birdy wishes to decorate her glider with the largest possible circle within her large triangular hang glider. She needs to locate which point of concurrency?

Incenter

58) Architect Lloyd Frank has designed a round window to be centered on the triangular wall of his latest house design. He wishes the circular frame to be 40 cm from each edge of the isosceles triangle. How should he locate the center of the circle?

Incenter