Practice Worksheet – The 4 Centers of a Triangle

In #'s 1 – 4 state whether the indicated center of the triangle appears to be on a side of the triangle, in the interior of the triangle, or in the exterior of the triangle.

1) The centroid of: a) an acute angle b) a right angle c) an obtuse angle

2) The circumcenter of: a) an acute Δ b) a right Δ c) an obtuse Δ

3) The incenter of: a) an acute Δ b) a right Δ c) an obtuse Δ

4) The orthocenter of: a) an acute Δ b) a right Δ c) an obtuse Δ

5) If 2 altitudes of a given Δ fall outside the triangle, the triangle is
a) right b) acute c) obtuse

6) If the point at which the perpendicular bisectors of the sides of a triangle are concurrent is outside the triangle, the triangle is a) acute b) right c) obtuse

7) Construct the centroid P of ΔABC.

8) Construct the circumcenter of ΔLMN.

9) Construct the incenter of an obtuse triangle.

10) Construct the orthocenter of an acute triangle.

11) In ΔABC, medians $\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ intersect at P. If $\overline{AD}$ = 24in., find the length of $\overline{AP}$.

12) In ΔABC, medians $\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ are concurrent at P. If $\overline{AP}$ = 8, find the length of $\overline{AD}$ and $\overline{PD}$.

13) In ΔRST, the medians $\overline{SL}$, $\overline{RN}$, and $\overline{TM}$ are concurrent at point P. If $\overline{SP}$ = 10, find $\overline{PL}$ and $\overline{SL}$.

14) Construct the inscribed circle of an acute triangle.

15) The perpendicular bisectors of ΔQRS intersect at P. If $\overline{QP}$ = 3x, $\overline{RP}$ = 18, and $\overline{SP}$ = y + 10, solve for x and y.

16) The perpendicular bisectors of ΔLMN intersect at O. If $\overline{LO}$ = 2x – 4, $\overline{MO}$ = y – 6, and $\overline{NO}$ = 10. Solve for x and y.

17) The circumcenter of ΔWXY is point Z. If $\overline{WZ}$ = 17, $\overline{XZ}$ = 3x – 13, and $\overline{YZ}$ = x + y. Solve for x and y.