Worksheet Altitude, Median, Angle bisector, perpendicular Bisector

Name ______________________

Name the special segment for 1-4

1) $\overline{AC}$

2) $\overline{HE}$

3) $\overline{JL}$

4) $\overline{PN}$

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

6) In $\triangle ABC$, $\overline{DE}$ is perpendicular bisector of $\overline{AC}$ with D on $\overline{AC}$. If $AD = 2y + 4$, $CD = y + 12$, and $m\angle EDC = 5(x - 12)^\circ$. Find the value of x and y. Find length of $AD, DC, AC$.

7) $\overline{DB}$ is an altitude of $\triangle ADC$, and $m\angle DBC = (n^2 + 81)^\circ$. Find the value of n.

8) $\overline{DB}$ and $\overline{AE}$ are medians. If $BC = 6y + 10$, $AB = y^2 + 3y$, $CE = 6x + 12$, $ED = 2x + 60$, then find the value of x and y, and the length of the segments.

9) $\overline{YB}$ is an altitude of $\triangle XYZ$, and $m\angle YBZ = (6x - 6)^\circ$. Find the value of x. What is the measure of $\angle YBZ$?

10) In $\triangle DEG$, $\overline{FH}$ is a perpendicular bisector of $\overline{DG}$ with H on $\overline{DG}$. If $DH = 2y + 3$, $GH = 7y - 42$, and $m\angle FHG = (x^2 + 9)^\circ$, then find the value of x and y. What is the measure of $\overline{DG}$?
11) \( \overline{RS} \) is an altitude of \( \triangle RTE \), \( m\angle SRT = (4x - 8)\degree \), and \( m\angle STR = (6x + 13)\degree \). Find the value of \( x \).

12) In \( \triangle RTE \), \( \overline{TA} \) bisects \( \angle RTE \), \( m\angle RTA = (3y - 4)\degree \), and \( m\angle ETA = (4y - 17)\degree \). Find the measure of \( \angle RTE \).

13) \( \overline{TA} \) is a median of \( \triangle RTE \), \( AE = 3x - 11 \), and \( AR = x + 5 \). Find \( AE \), \( AR \), and \( ER \).

14) \( \overline{EY} \) is a median of \( \triangle RET \), \( RY = 2z - 1 \), and \( TY = 4z - 11 \). Find \( RT \).

15) Find \( x \) and the measure of \( \angle PSR \), if \( \overline{PS} \) is a median.

16) Find \( x \), \( CD \), and \( DB \), if \( \overline{AD} \) is an altitude of \( \triangle ABC \).

17) \( \triangle WHA \), if \( \overline{WP} \) is a median and an angle bisector, \( AP = 3y + 11 \), \( PH = 7y - 5 \), \( m\angle HWP = x + 12 \), \( m\angle PAW = 3x - 2 \), and \( m\angle HWA = 4x - 16 \), find \( x \) and \( y \). Is \( \overline{WP} \) also an altitude, explain?