Name _____ Date _____ Class _____

LESSON 5-2

Problem Solving

Bisectors of Triangles

1. A new dog park is being planned. Describe how to find a location for the park so that it is the same distance from three suburbs.

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2. A fountain is in a triangular sitting area of a mall, $\triangle ABC$. A diagram shows that the fountain is at the point where the angle bisectors of $\triangle ABC$ are concurrent. If the distance from the fountain to one wall is 15 feet, what is the distance from the fountain to another wall? Explain.

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3. A water tower is to be built so that it is the same distance from the cities at X, Y, and Z. Draw a sketch on $\triangle XYZ$ to show the location W where the water tower should be built. Justify your sketch.

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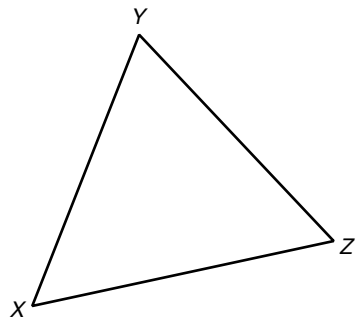


Choose the best answer.

4. The circumcenter of $\triangle FGH$ is at $(4, -5)$. If G is at $(0, 0)$, which of the following are possible coordinates of F and H?

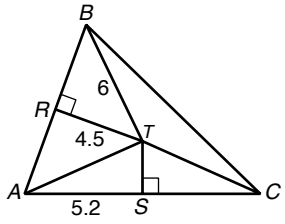
A $F(0, -8)$, $H(10, 0)$
B $F(0, 8)$, $H(-10, 0)$
C $F(0, -10)$, $H(8, 0)$
D $F(0, 10)$, $H(-8, 0)$

5. A triangle has vertices $Q(-9, 10)$, $R(0, 1)$, and $S(8, 4)$. Which is a correct statement about the incenter and circumcenter of $\triangle QRS$?

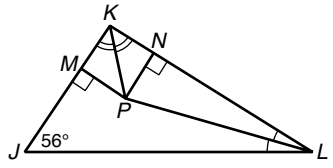
F Both points are on $\triangle QRS$.
G Both points are inside $\triangle QRS$.
H Both points are outside $\triangle QRS$.
J One point is inside $\triangle QRS$, and one point is outside $\triangle QRS$.

6. $\overline{RT}$ and $\overline{TS}$ are perpendicular bisectors of $\triangle ABC$. What is the perimeter of $\triangle ATC$?

A 17.2 units
B 19.4 units
C 20.9 units
D 22.4 units



7. If $m\angle KPN = 44°$, find $m\angle JLP$.



F 16°
G 18°
H 23°
J 32°