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5.1 Bisectors, Medians, Altitudes

Date $\qquad$ Hour $\qquad$

For problems 1-3, use the following info: $\mathrm{R}(3,3) \mathrm{S}(-1,6) \mathrm{T}(1,8)$ are vertices of $\Delta R S T . \overline{R X}$ is a median.

1) Find the length $R X$.
2) Find the slope of $\overline{R X}$. Write an equation for the line.
3) Is $\overline{R X}$ an altitude of $\triangle R S T$ ? How do you know?
4) Orienteering is a competitive sport originating in Sweden. It tests map reading skills and cross country running. Competitors race through an unknown area to find various checkpoints using a compass and topographical map. For amateurs, clues are given to locate the first flag.

- The flag is as far from the Grand Tower as it is from the park entrance.
- If you run straight from Stearns Road to the flag or from Amesbury Road to the flag the distances are the same.

Describe how to find the first flag.

5) An architect is designing a building. How should the central office be positioned so it is equidistant from each of the three entrance points.

6) If $\angle 9 \cong \angle 10$ then name two congruent segments.
7) If $\overline{\mathrm{LT}} \cong \overline{\mathrm{LS}}$ then name two congruent angles.

8) For an object that is projected straight upward with an initial velocity of $v$ meters per second the time to hit the ground can be determined with the equation $\boldsymbol{s}=-\boldsymbol{v} \boldsymbol{t}+\mathbf{1 0 t}^{\mathbf{2}}$ where $\boldsymbol{t}=$ time (in seconds) and $\boldsymbol{s}=$ starting height. Michael is standing at the edge of a balcony 54 meters above the ground. He throws the ball straight up with an initial velocity of 12 meters per second. After how many seconds will it hit the ground?
9) Complete the truth table.

| $\mathbf{p}$ | $\mathbf{q}$ | $\sim(\mathbf{p} \vee \sim \mathbf{q})$ |
| :---: | :---: | ---: |
| T | T |  |
| T | F |  |
| F | T |  |
| F | F |  |

