Chapter 10

Indicate the best answer by writing the appropriate letter.

1. In a plane, what is the locus of points equidistant from two given points?
   a. a point **b.** a circle **c.** a line **d.** a pair of lines

2. Point P lies on line l in a plane. What is the locus of points, in that plane, that lie 8 cm from P and 2 cm from l?
   a. no points **b.** two points **c.** three points **d.** four points

3. To inscribe a circle in a triangle, what should you construct first?
   a. two medians **b.** two angle bisectors
   c. two altitudes **d.** the perpendicular bisectors of two sides

4. The lengths of two segments are r and s, with $r > s$. It is *not* possible to construct a segment with which of these lengths?
   a. $\frac{1}{5}(r + s)$ **b.** rs **c.** $\sqrt{3rs}$ **d.** $\sqrt{r^2 + s^2}$

5. It *is* possible to construct an angle with which of these measures?
   a. 10 **b.** 20 **c.** 30 **d.** 40

6. You are to construct a tangent to a given $\odot O$ from a point P outside the circle. In the process, it would be useless to construct which of these?
   a. $\overline{OP}$ **b.** the perpendicular bisector of $\overline{OP}$
   c. a circle with O and P on it **d.** a line parallel to $\overline{OP}$

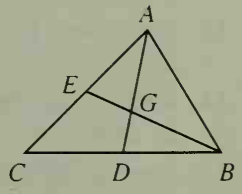
7. You are given points R and S. Which of the following could *not* be the locus of points in space that are equidistant from R and S and also 4 cm from point S?
   a. a pair of circles **b.** a circle **c.** a point **d.** the empty set

8. Where *must* the perpendicular bisectors of the sides of a triangle meet?
   a. inside the triangle **b.** on the triangle
   c. outside the triangle **d.** none of these

9. In space, what is the locus of points 3 cm from a given point A?
   a. a line **b.** a plane
   c. a circle **d.** a sphere

10. In a plane, what is the locus of points equidistant from the sides of a square?
    a. a square **b.** a line
    c. a circle **d.** a point

11. In $\triangle ABC$, $\overline{AD}$ and $\overline{BE}$ are medians. If $AG = 8$, find AD.
    a. 12 **b.** 32
    c. 4 **d.** 16



12. You are to construct a perpendicular to a line l at a given point X on l. In how many places on l will you need to position the point of your compass in order to do this construction?
    a. one **b.** two **c.** three **d.** four