Name: _____ **Date:** _____

CC Geometry

Constructions and Concurrence Graded Assignment

Multiple Choice – Write your answer on the line. Each question is worth 3 points.

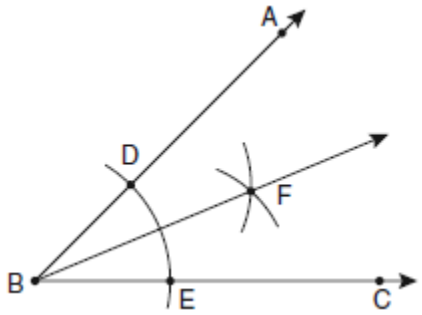
_____ **1.** The diagram below shows the construction of the bisector of $\angle ABC$. Which statement is *not* true?

1) $m\angle EBF = \frac{1}{2} m\angle ABC$

2) $m\angle DBF = \frac{1}{2} m\angle ABC$

3) $m\angle EBF = m\angle ABC$

4) $m\angle DBF = m\angle EBF$



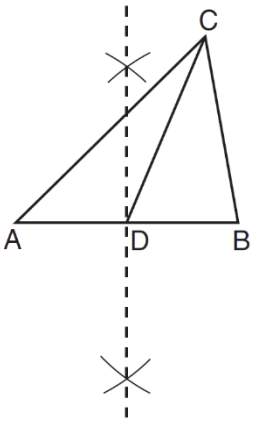
_____ **2.** In the construction shown below, $\overline{CD}$ is drawn. In $\triangle ABC$, $\overline{CD}$ is the

1) perpendicular bisector of side $\overline{AB}$

2) median to side $\overline{AB}$

3) altitude to side $\overline{AB}$

4) bisector of $\angle ACB$



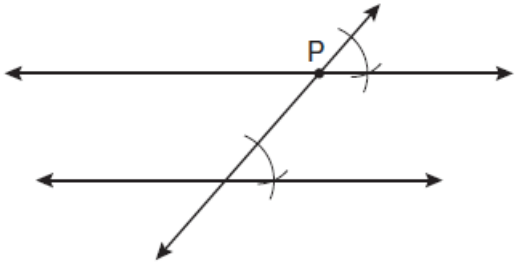
_____ **3.** Which geometric principle is used to justify the construction below?

1) A line perpendicular to one of two parallel lines is perpendicular to the other.

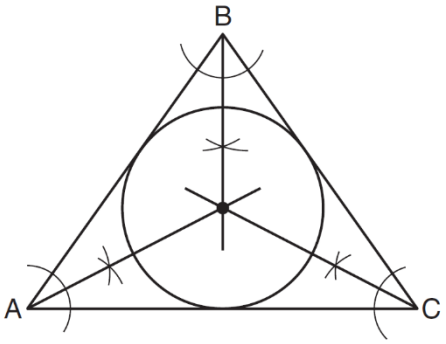
2) Two lines are perpendicular if they intersect to form congruent adjacent angles.

3) When two lines are intersected by a transversal and alternate interior angles are congruent, the lines are parallel.

4) When two lines are intersected by a transversal and the corresponding angles are congruent, the lines are parallel.



_____ **4.** Which geometric principle is used in the construction shown below?



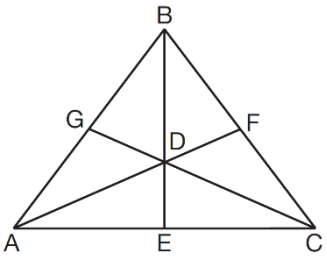
1) The intersection of the angle bisectors of a triangle is the center of the inscribed circle.

2) The intersection of the angle bisectors of a triangle is the center of the circumscribed circle.

3) The intersection of the perpendicular bisectors of the sides of a triangle is the center of the inscribed circle.

4) The intersection of the perpendicular bisectors of the sides of a triangle is the center of the circumscribed circle.

_____**5.** As shown below, the medians of $\triangle ABC$ intersect at *D*. If the length of $\overline{BE}$ is 12, what is the length of $\overline{BD}$?



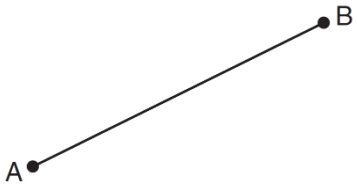
1) 8
2) 9
3) 3
4) 4

_____ **6.** In which triangle do the three altitudes intersect outside the triangle?

1) a right triangle
2) an acute triangle
3) an obtuse triangle
4) an equilateral triangle

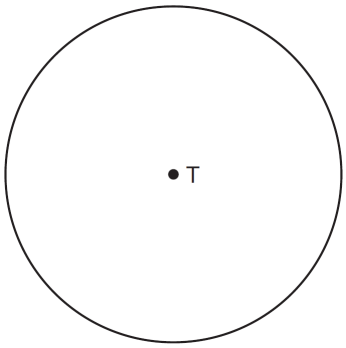
Part II Constructions – Each question is worth 4 points. Leave all constructions marks to receive full credit.

7. Using a compass and straightedge, locate the midpoint of $\overline{AB}$ by construction.

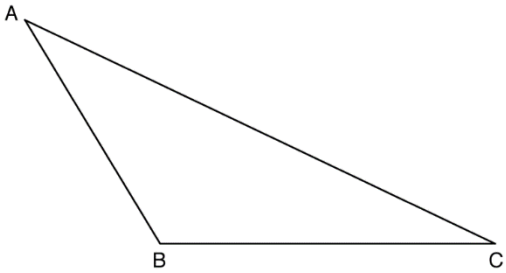


8. Using the line segment below, use a compass and straightedge to construct equilateral triangle *ABC*.

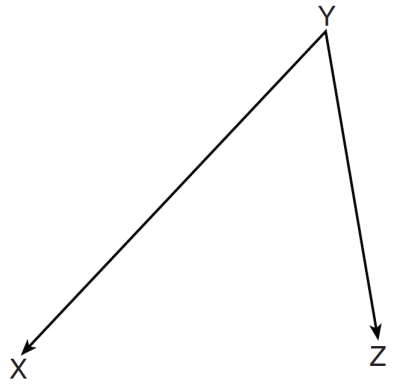
9. Construct a hexagon inscribed in circle *T* shown below.



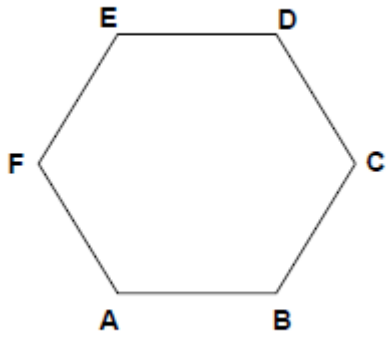
10. Using a compass and straightedge, construct an altitude of triangle *ABC* below.



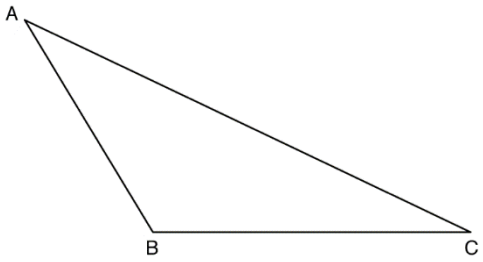
11. On the diagram below, use a compass and straightedge to construct the bisector of $\angle XYZ$.



12. Construct an angle congruent to $\angle B$ of hexagon *ABCDEF* with vertex *W*



13. Locate, by construction, the incenter of the triangle below



14. Triangle *XYZ* is shown below. Using a compass and straightedge, on the line below, construct and label $\triangle ABC$, such that $\triangle ABC \cong \triangle XYZ$.