Lesson 9 Practice Problems

1. Which construction can be used to determine whether point C is closer to point A or point B?

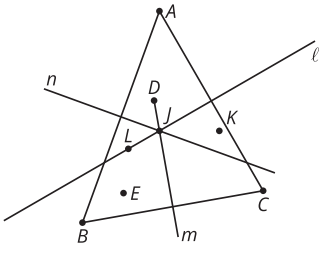
   A. Construct triangle ABC.

   B. Construct a line perpendicular to segment AB through point C.

   C. Construct the bisector of angle ACB.

   D. Construct the perpendicular bisector of segment AB.

2. The diagram is a straightedge and compass construction. Lines ℓ, m, and n are the perpendicular bisectors of the sides of triangle ABC. Select **all** the true statements.



   A. Point E is closer to point A than it is to point C.

   B. Point L is closer to point B than it is to point A.

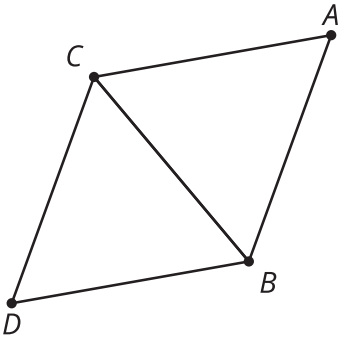
   C. Point D is closer to point B than it is to point C.

   D. Point J is closer to point A than it is to point B or point C.

   E. Point K is closer to point C than it is to point A or point B.

   F. Point L is closer to point C than it is to point A or point B.

3. Decompose the figure into regions that are closest to each vertex. Explain or show your reasoning.



4. Which construction could be used to construct an isosceles triangle ABC given line segment AB?

   A. Mark a third point C not on segment AB. Draw segments AC and BC.

   B. Label a point C on segment AB and construct a line perpendicular to AB through point C. Draw segments AC and BC.

   C. Construct the perpendicular bisector of segment AB. Mark the intersection of this line and AB and label it C. Draw segments AC and BC.

   D. Construct the perpendicular bisector of segment AB. Mark any point C on the perpendicular bisector except where it intersects AB. Draw segments AC and BC.

5. Select **all** true statements about regular polygons.

   A. All angles are right angles.

   B. All angles are congruent.

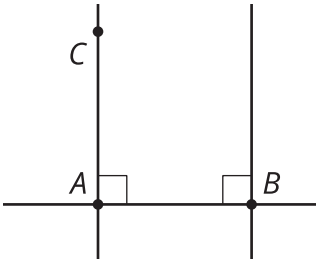
   C. All side lengths are equal.

   D. There are exactly 4 sides.

   E. There are at least 3 sides.

(From Unit 1, Lesson 7.)

6. This diagram shows the beginning of a straightedge and compass construction of a rectangle.



The construction followed these steps:

a. Start with two marked points A and B

b. Use a straightedge to construct line AB

c. Use a previous construction to construct a line perpendicular to AB passing through A

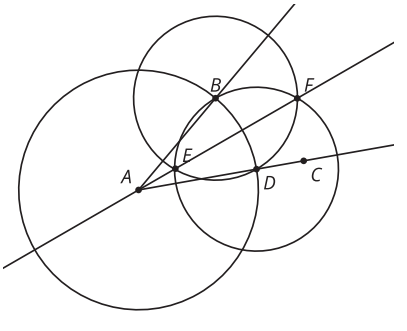
d. Use a previous construction to construct a line perpendicular to AB passing through B

e. Mark a point C on the line perpendicular to AB passing through A

Explain the steps needed to complete this construction.

(From Unit 1, Lesson 7.)

7. This diagram is a straightedge and compass construction. Is it important that the circle with center B passes through D and that the circle with center D passes through B? Show or explain your reasoning.



(From Unit 1, Lesson 5.)