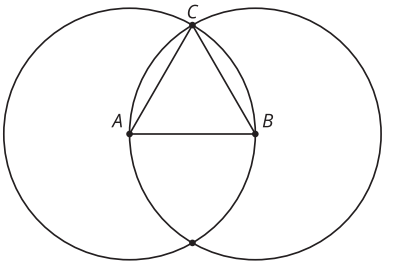
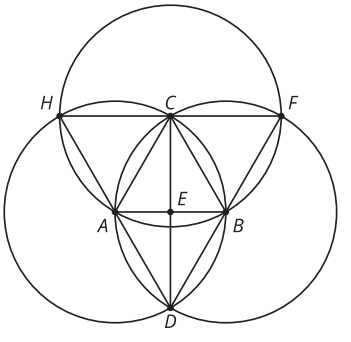
Lesson 4 Practice Problems

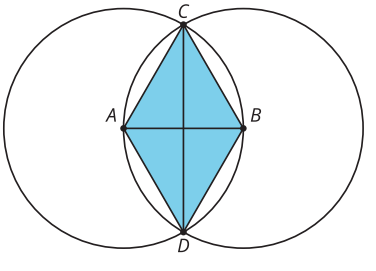
1. This diagram is a straightedge and compass construction. A is the center of one circle, and B is the center of the other. Explain how we know triangle ABC is equilateral.



2. A, B, and C are the centers of the 3 circles. How many equilateral triangles are there in this diagram?



3. This diagram is a straightedge and compass construction. A is the center of one circle, and B is the center of the other. Select **all** the true statements.



A. $AC = BC$

B. $AC = BD$

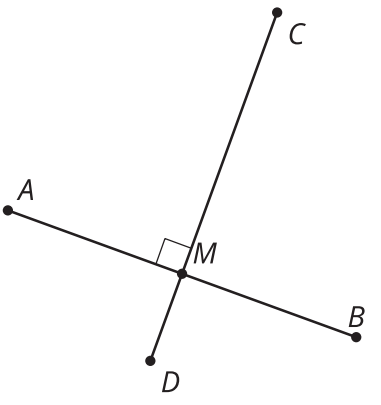
C. $CD = AB$

D. $ABCD$ is a square.

E. ABD is an equilateral triangle.

F. $CD = AB + AB$

4. Line segment CD is the perpendicular bisector of line segment AB. Is line segment AB the perpendicular bisector of line segment CD?



(From Unit 1, Lesson 3.)

5. Here are 2 points in the plane.

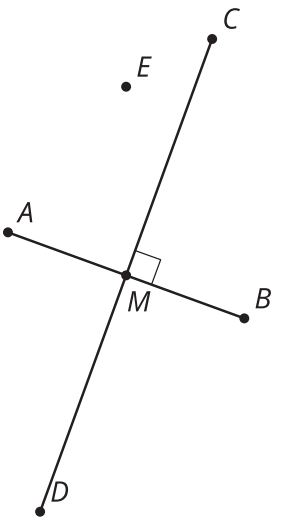
a. Using only a straightedge, can you find points in the plane that are the same distance from points A and B? Explain your reasoning.

b. Using only a compass, can you find points in the plane that are the same distance from points A and B? Explain your reasoning.

(From Unit 1, Lesson 3.)

6. In this diagram, line segment CD is the perpendicular bisector of line segment AB. Assume the conjecture that the set of points equidistant from A and B is the perpendicular bisector of AB is true. Select **all** statements that must be true.

$AB \perp CD$



A. $AM = BM$

B. $CM = DM$

C. $EA = EM$

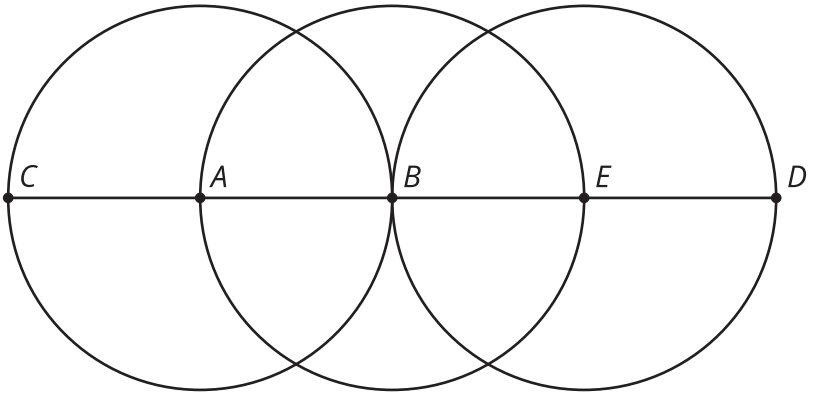
D. $EA < EB$

E. $AM < AB$

F. $AM > BM$

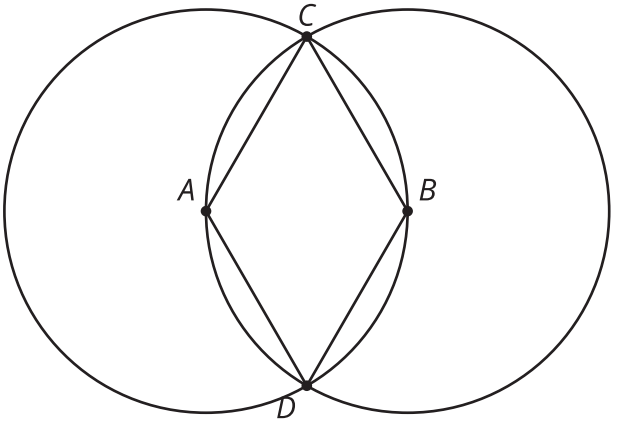
(From Unit 1, Lesson 3.)

7. The diagram was constructed with straightedge and compass tools. Name **all** segments that have the same length as segment AC.



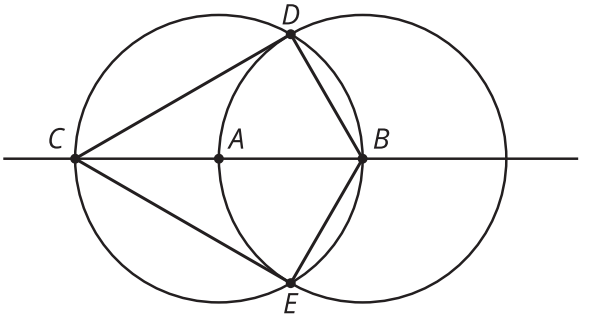
(From Unit 1, Lesson 1.)

8. Starting with 2 marked points, A and B, precisely describe the straightedge and compass moves required to construct the quadrilateral $ACBD$ in this diagram.



(From Unit 1, Lesson 2.)

9. In the construction, A is the center of one circle and B is the center of the other. Which segment has the same length as AB?



A. CB

B. CD

C. CE

D. CA

(From Unit 1, Lesson 2.)