

To find the midpoint of a straight line segment AB:

1. Draw intersecting circles of equal radius centered at points A and B.
2. Let C and D be the two points where the circles intersect.
3. Draw the straight line CD.
4. Let E be the point where AB intersects CD.
5. Terminate with point E as the answer.

Algorithm 1.1 Finding the midpoint of a straight line segment.

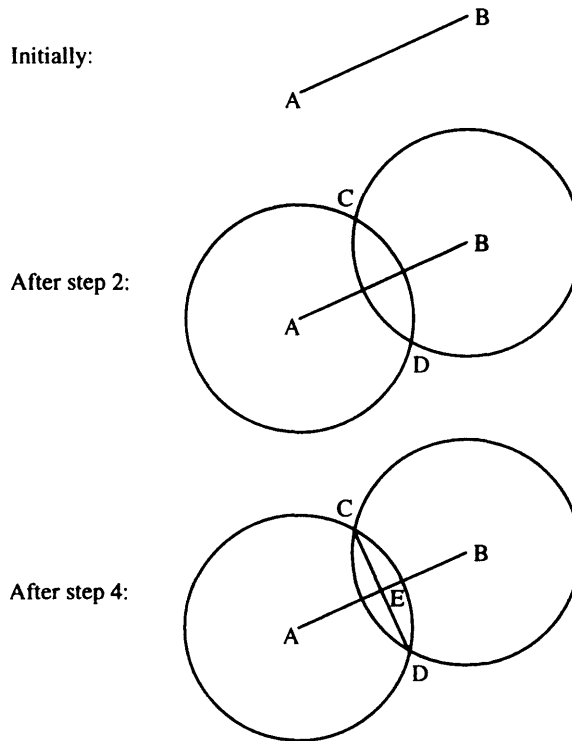


Figure 1.2 Illustration of Algorithm 1.1.

EXAMPLE 1.1 *Finding the midpoint of a straight line segment*

The Hellenic mathematicians systematically studied two- and three-dimensional geometry, motivated by their interests in architecture, astronomy, and geography. Algorithm 1.1 shows a simple geometric construction for finding the midpoint of a given straight line. It consists of several steps, which must be performed one after the other in the order shown. Figure 1.2 illustrates the construction, which needs only simple drawing instruments: a compass (step 1) and a ruler (step 3).