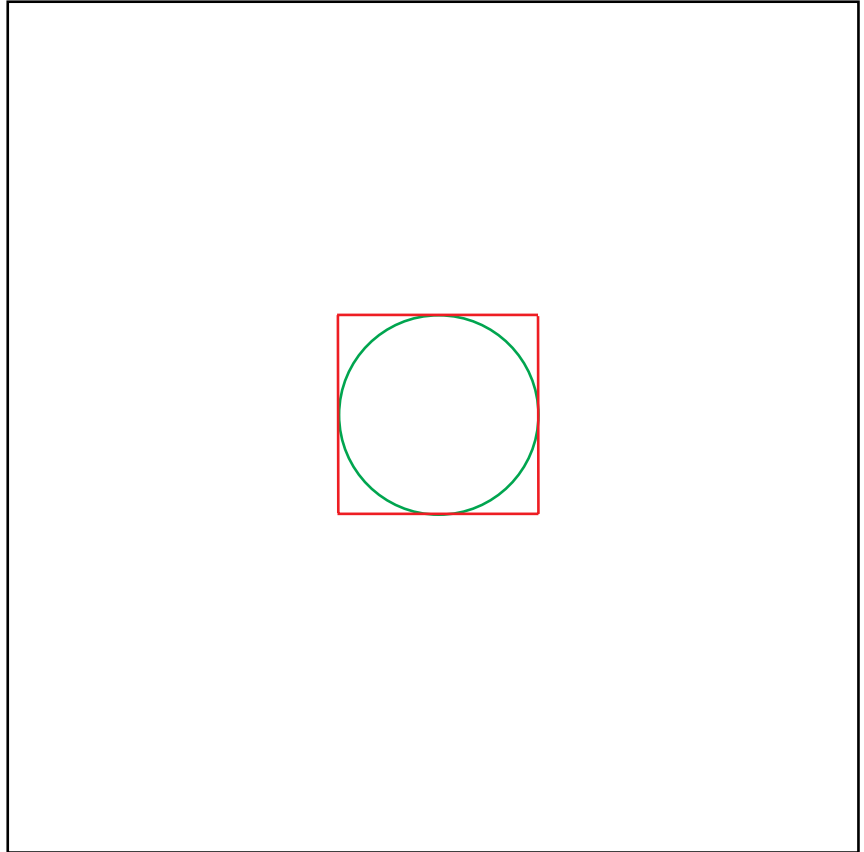
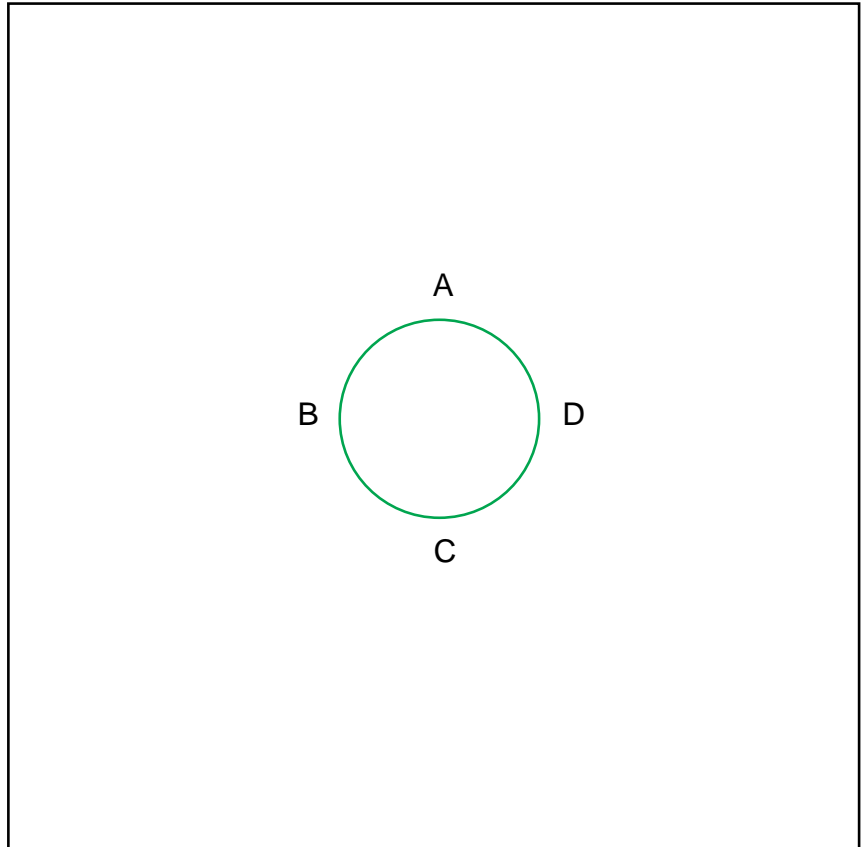

Construction 29: Book IV, Proposition 7

About a given circle to circumscribe a square.



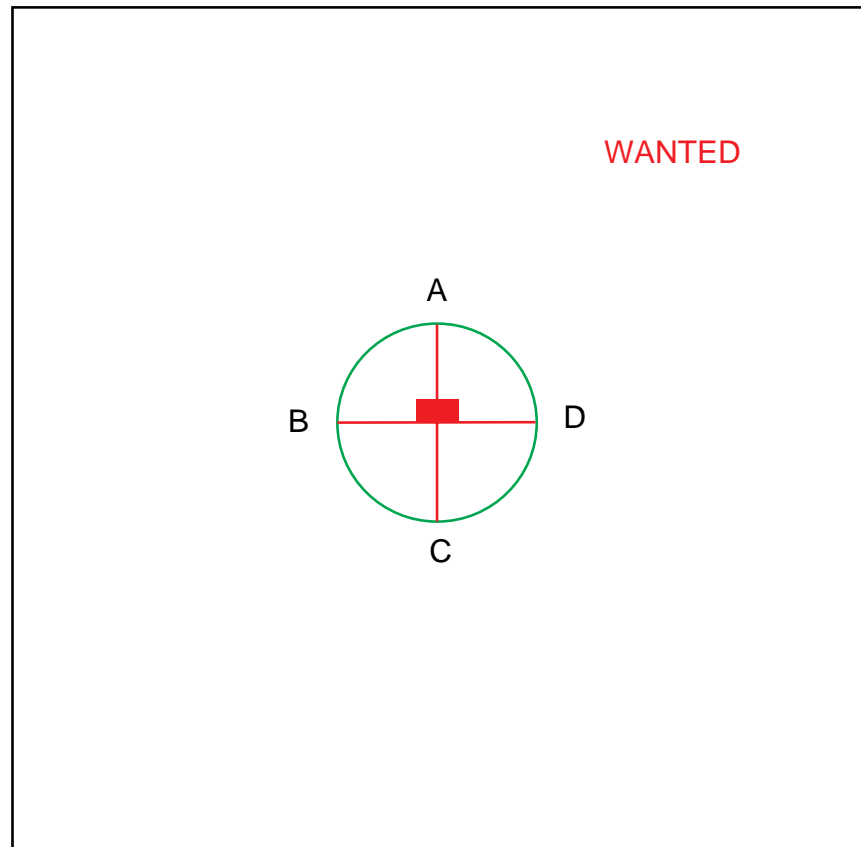
IV.7:2. Let ABCD be the given circle;



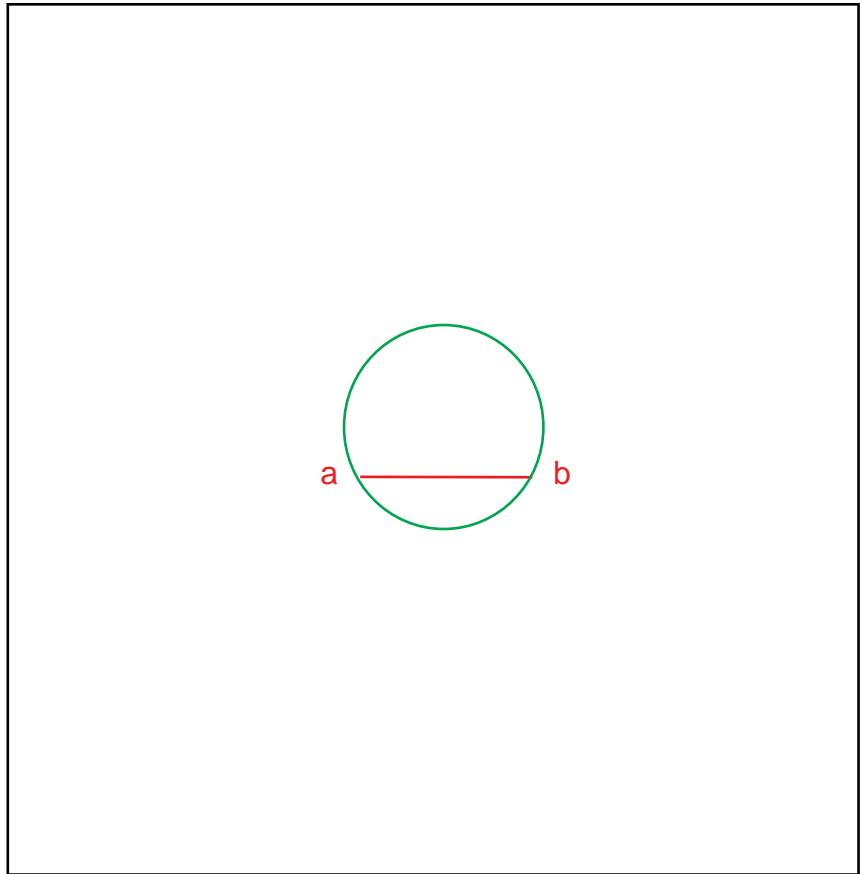
IV.7:5. Let two diameters AC, BD be drawn at right angles to one another,

First, we must find the centre.
(III.1).

GOSUB III.1.

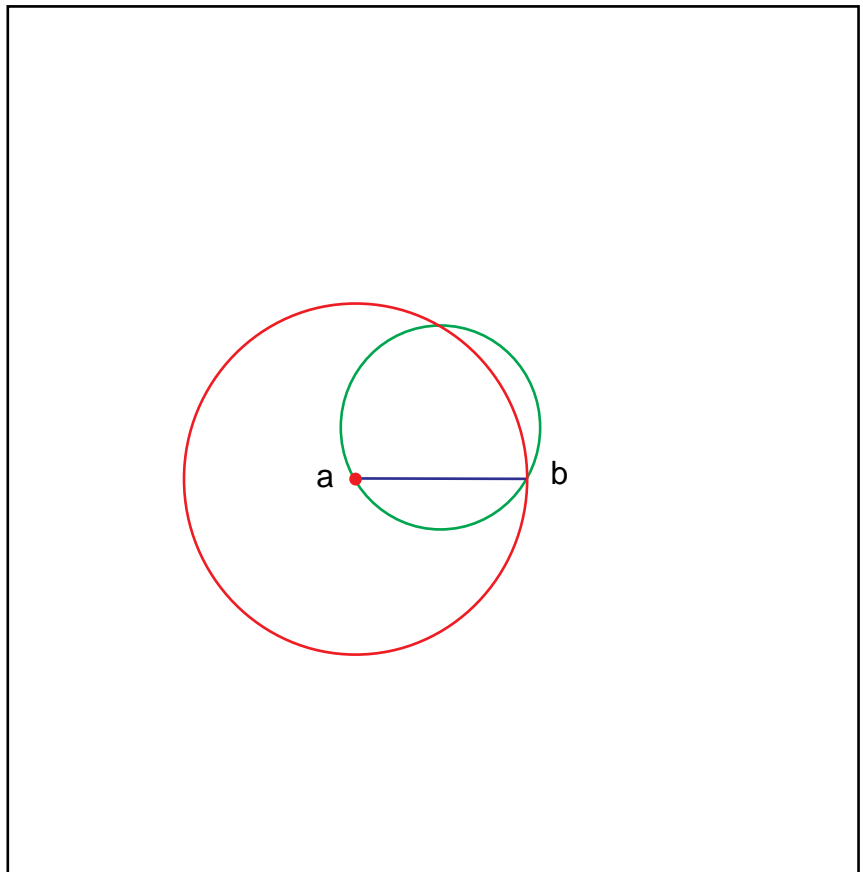


III.1:4. Let a straight line ab be drawn through it at random,

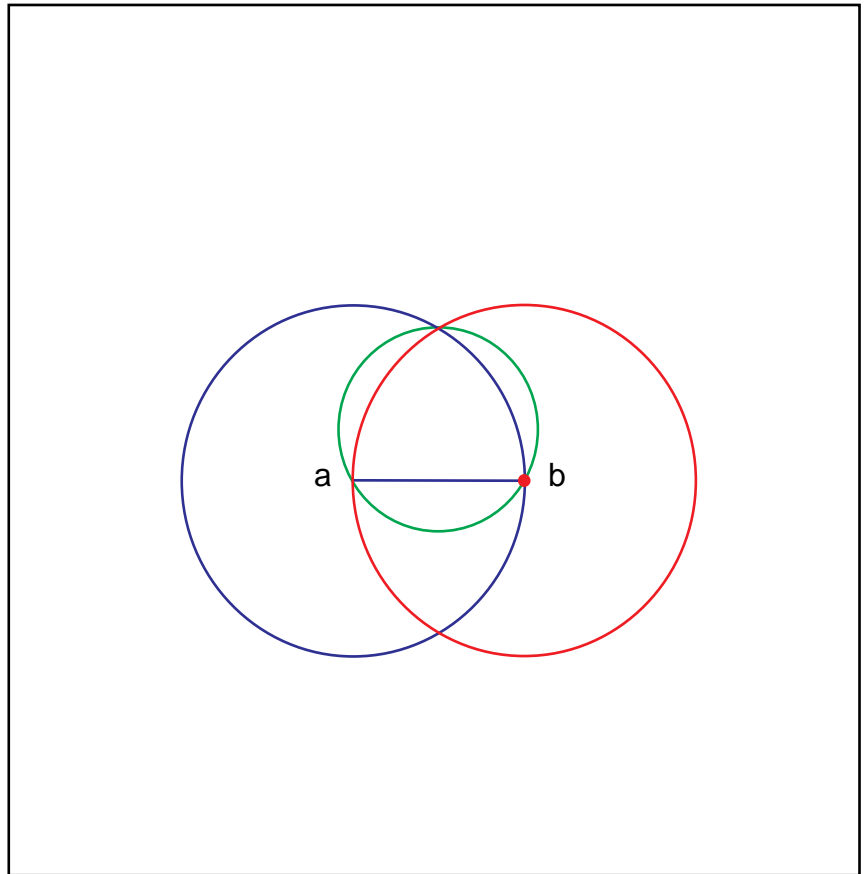


III.1:5. and let it be bisected at the point d ; (I.10)

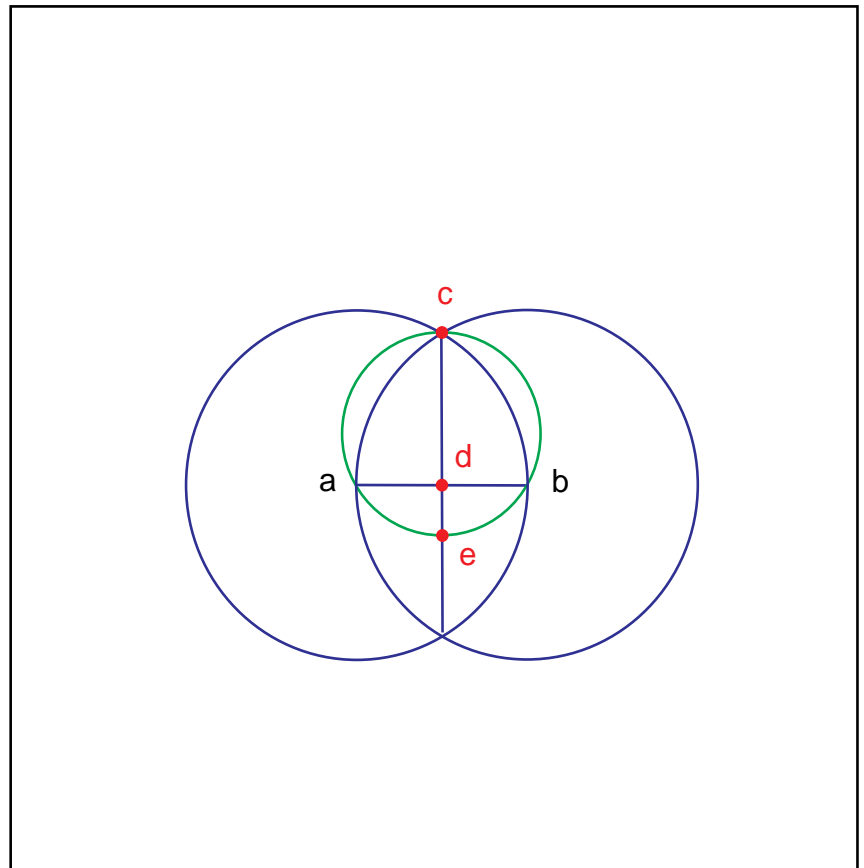
GOSUB I.10 (C#5B)
Swing ab around a .



Swing ba around b.

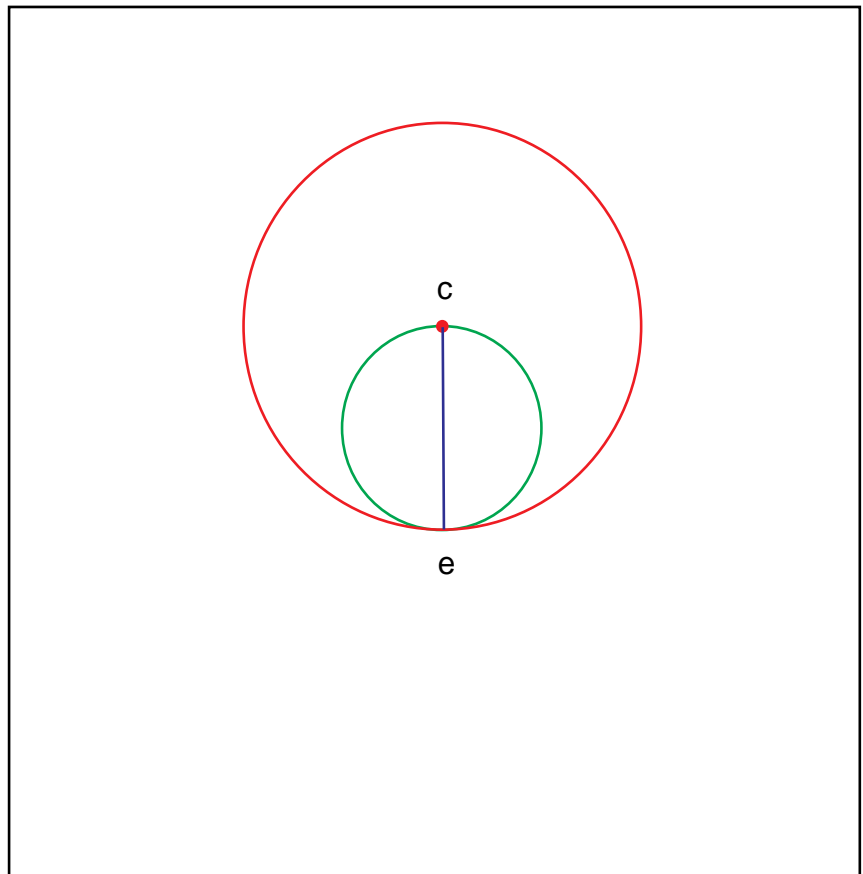


Connect the two crossing points. Mark the point d. Extend the line to cut completely the given circle, mark points c, e.



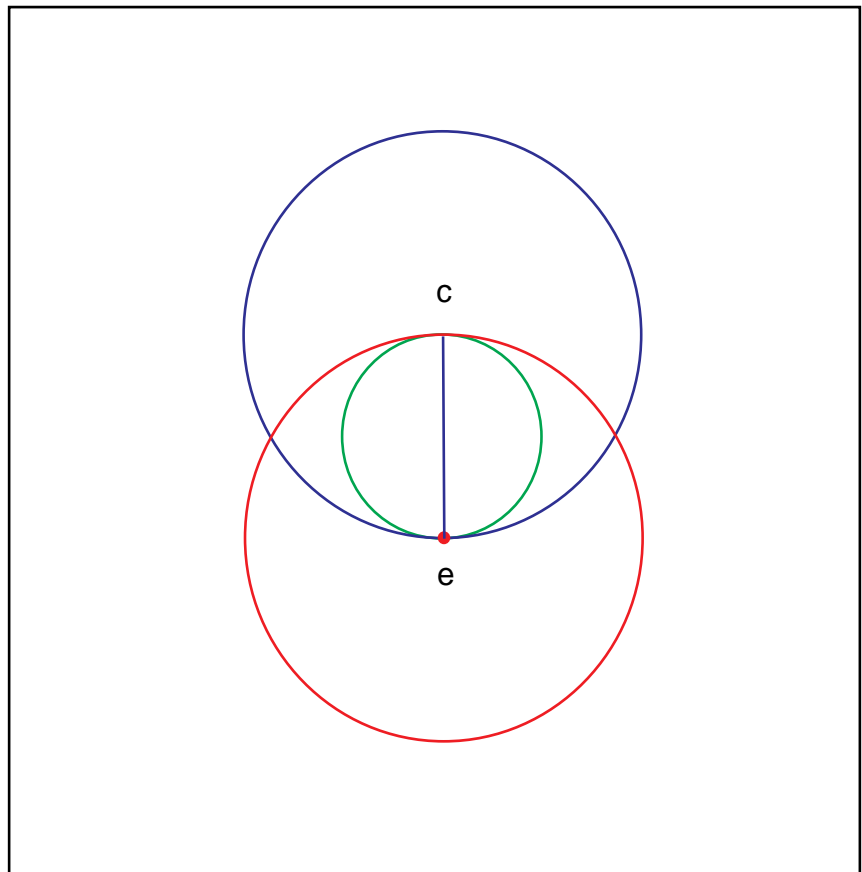
RETURN to III.1 at line 5.
Clean up, but preserve the new line, ce.

III.1:9. let ce be bisected at f ;
([I.10])



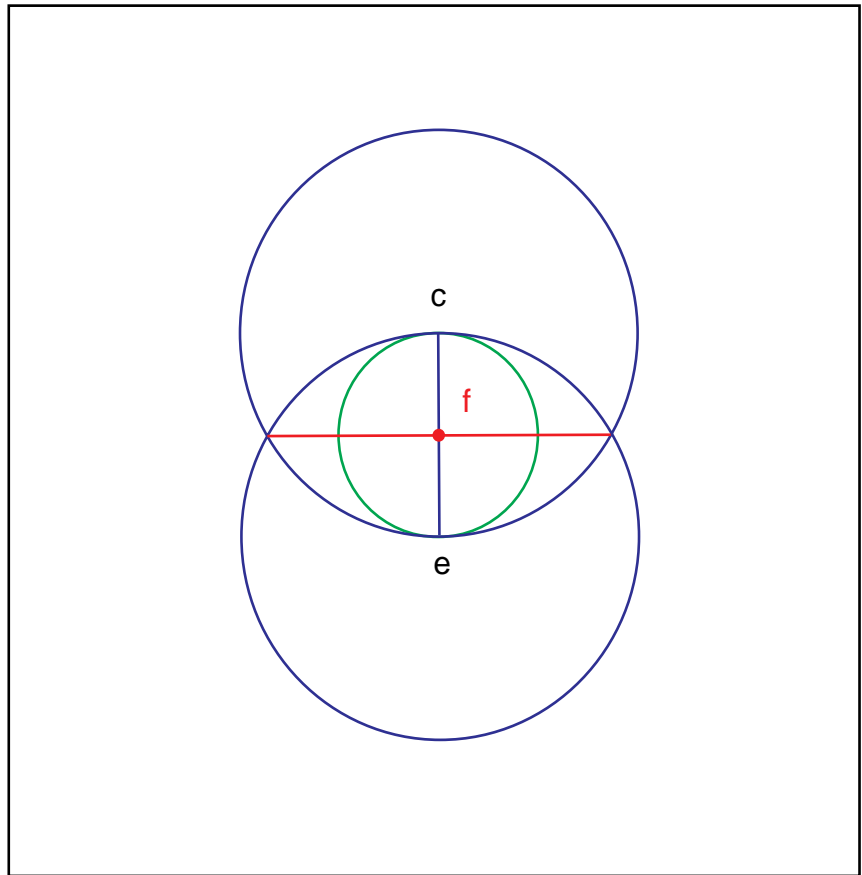
GOSUB I.10 (C#5B) again.
Swing ce around c .

Swing ec around e .



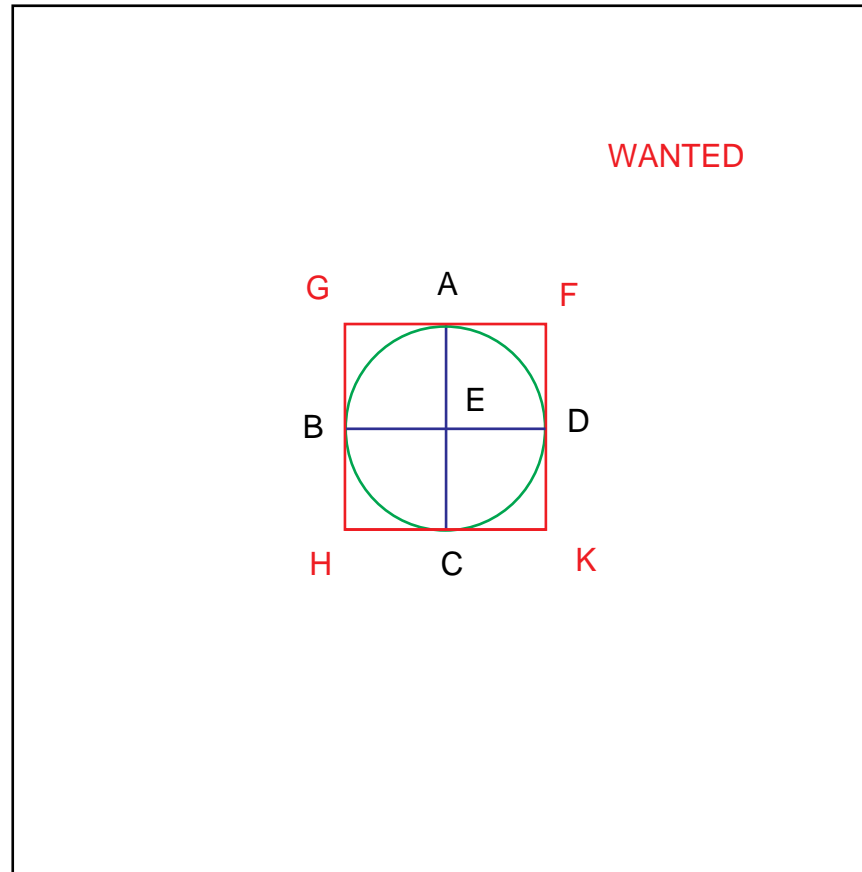
Connect the two crossing points.
Mark the point f.

Cleanup. Keep the diameter ce,
and new line.
RETURN to III.1 at line 9.
RETURN to IV.6 at line 4.
Relabel.

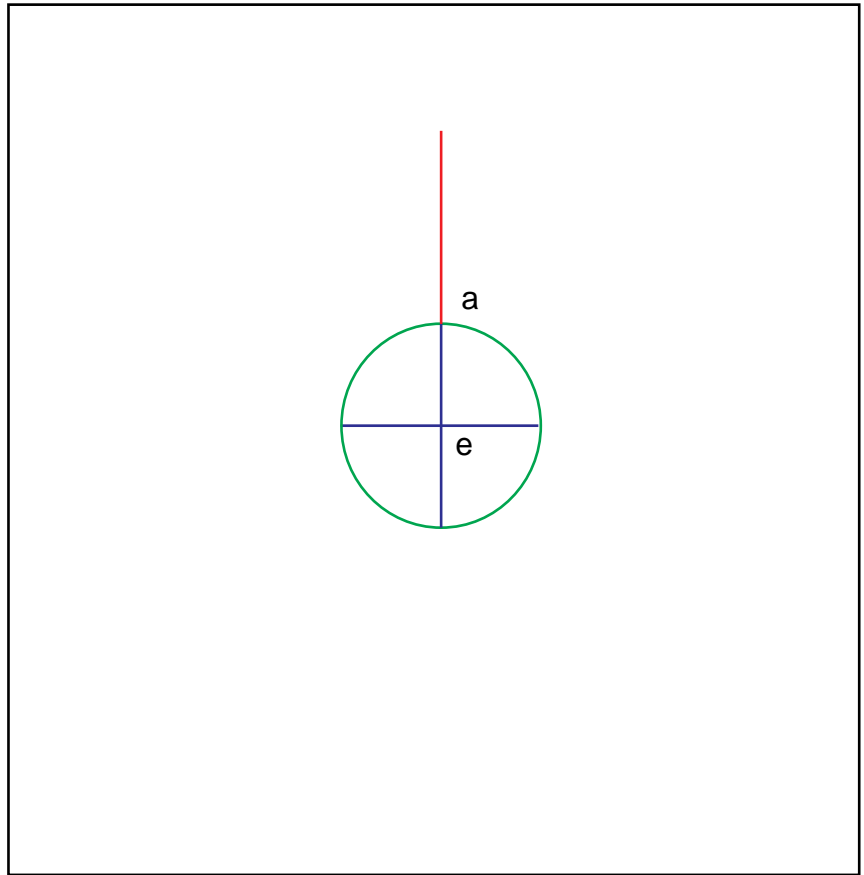


IV.7:7. and through the points A,
B, C, D let FG, GH, HK, KF be
drawn touching the circle ABCD.
[III.16, Por.]

GOSUB III.17 (C#18B)
Relabel. (First of four times.)

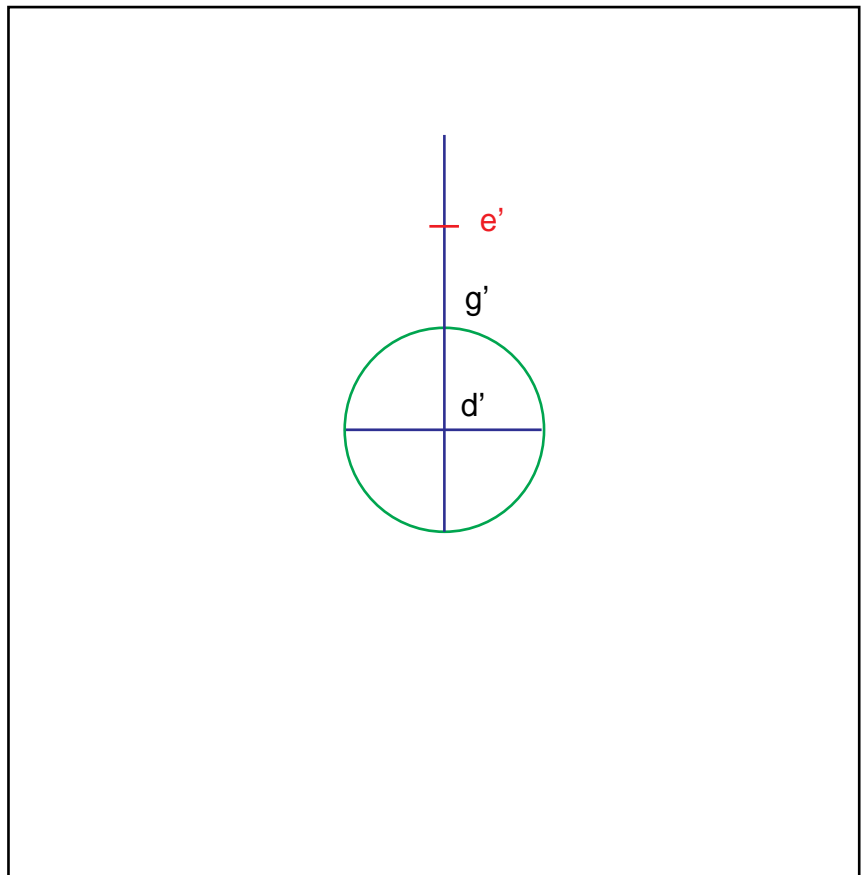


III.17:8. let ae be joined,

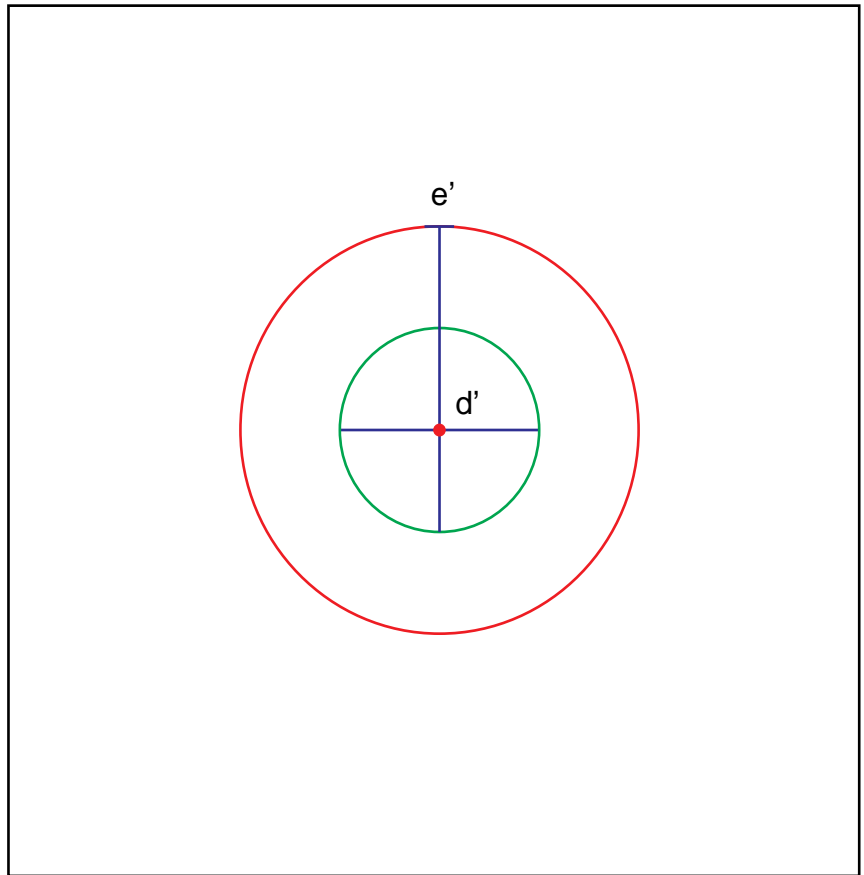


GOSUB I.11
 Extend the line ae.
 Relabel.

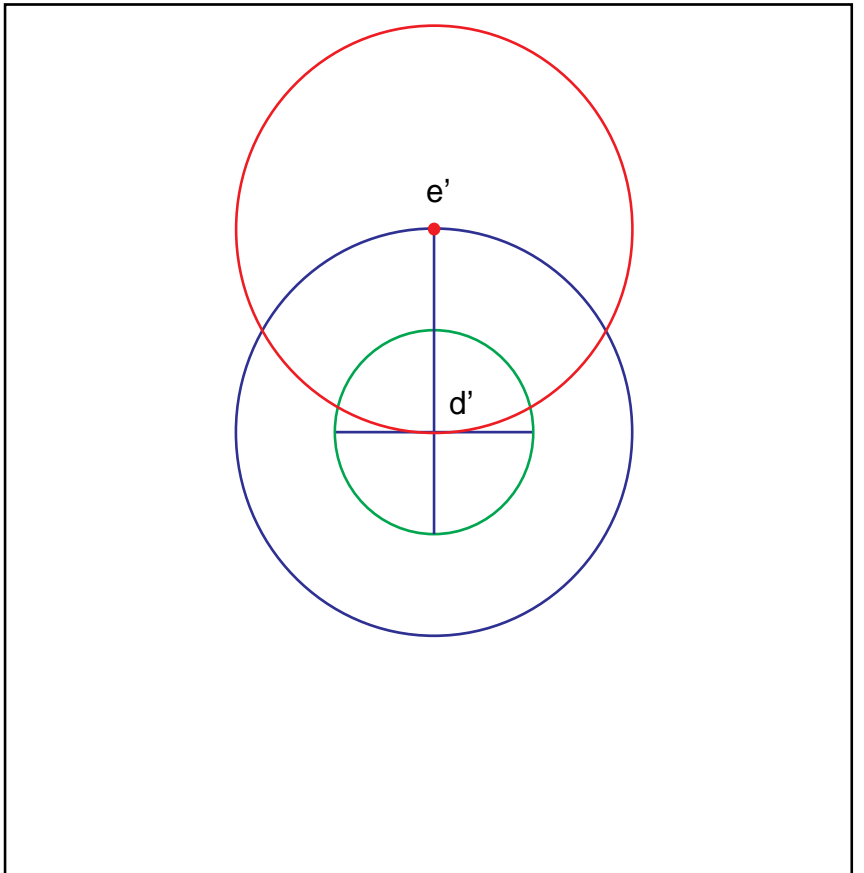
I.11:10. let $g'e'$ be made equal to $g'd'$; [I.3]



Swing $d'e'$ around d' .



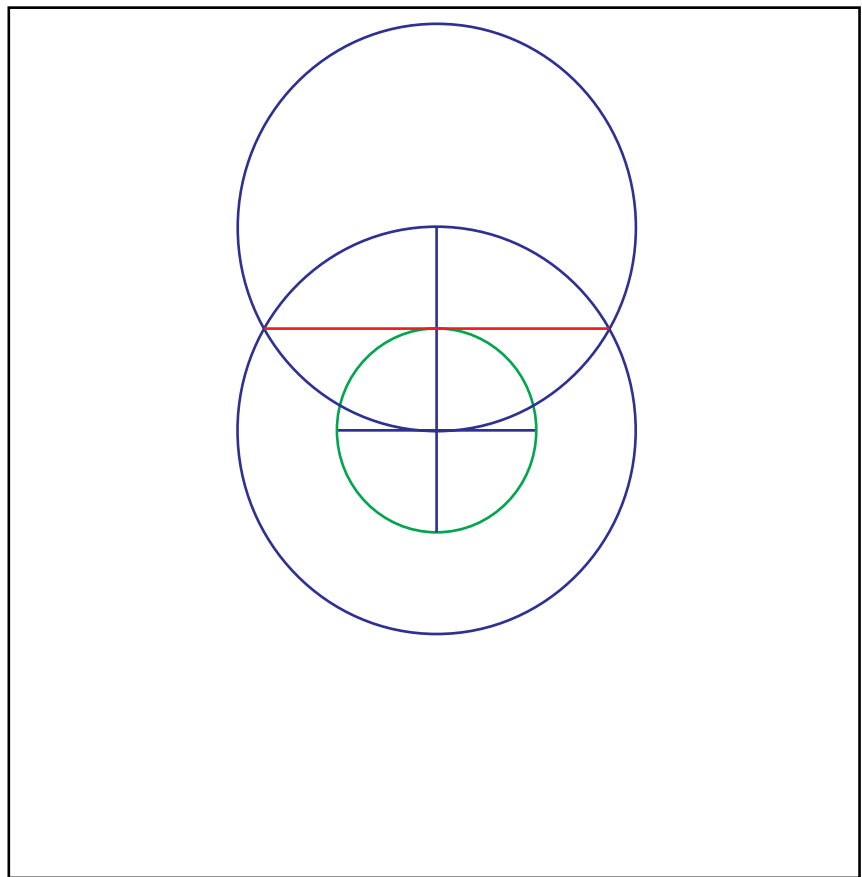
Swing $e'd'$ around e' .



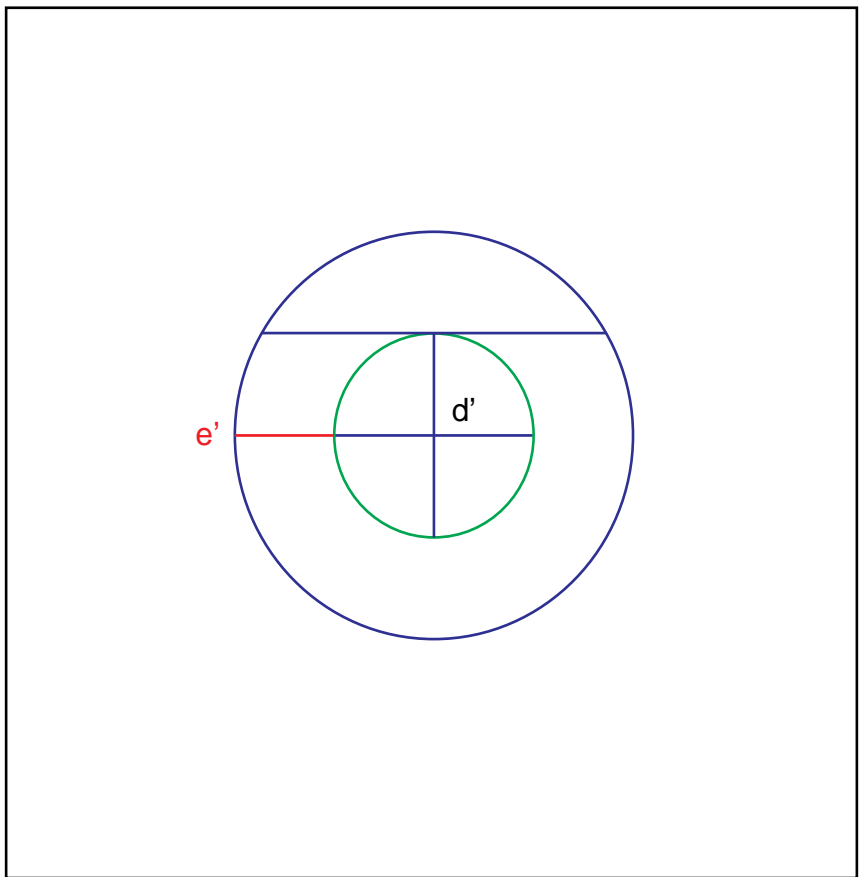
Connect the two crossing points.
Cleanup. Preserve the lower circle.

RETURN to III.17 at line 8.
RETURN to IV.7 at line 7. Relabel.

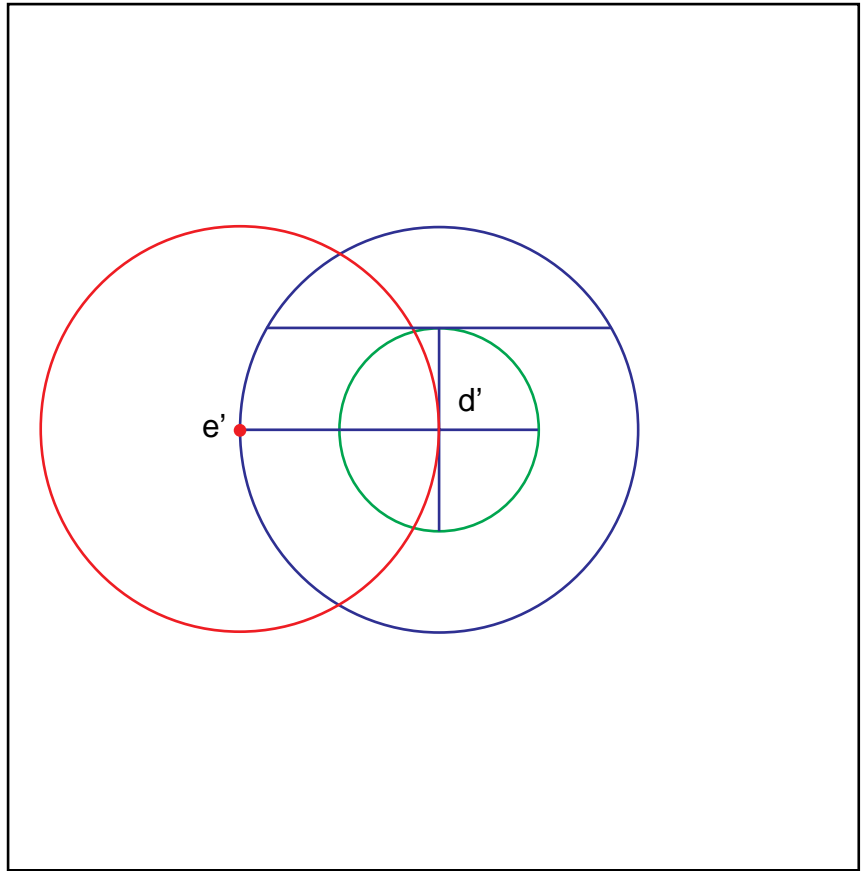
Repeat this subroutine, second of four times.
(Steps 8, ..., 12.)



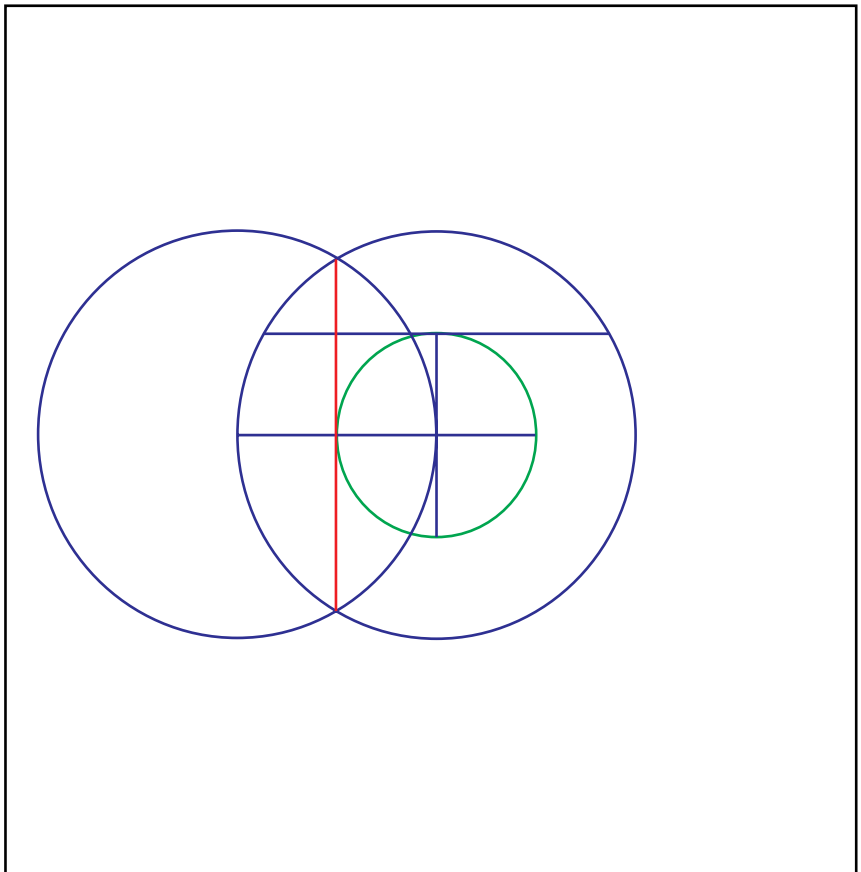
Extend.



Swing $e'd'$ around e' .

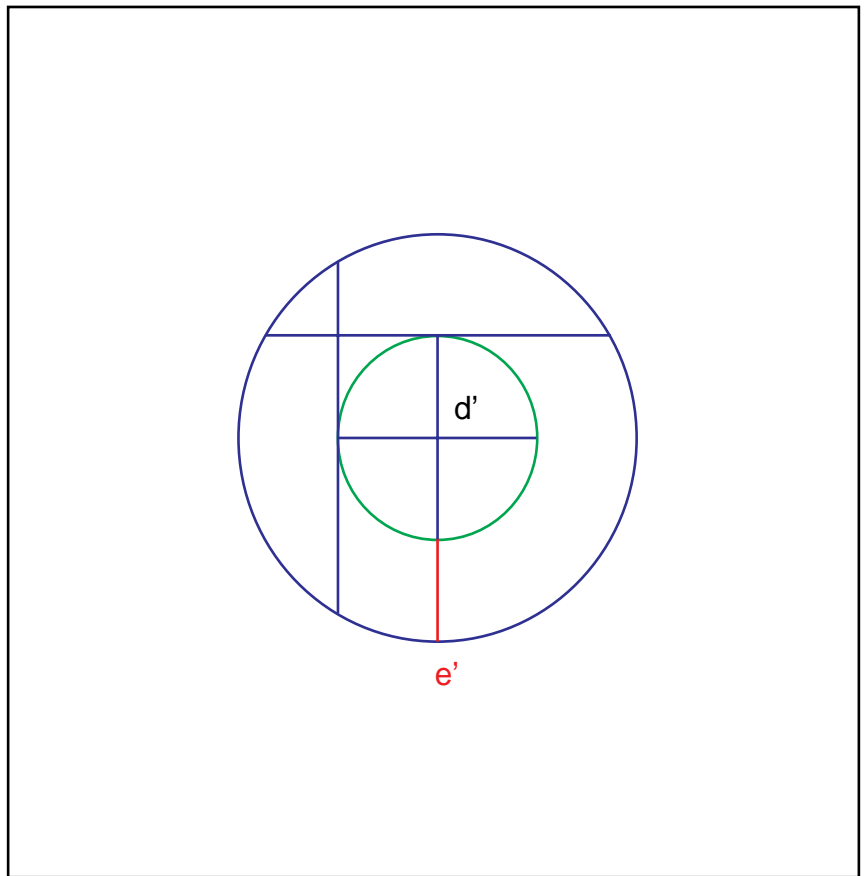


Connect the crossing points.

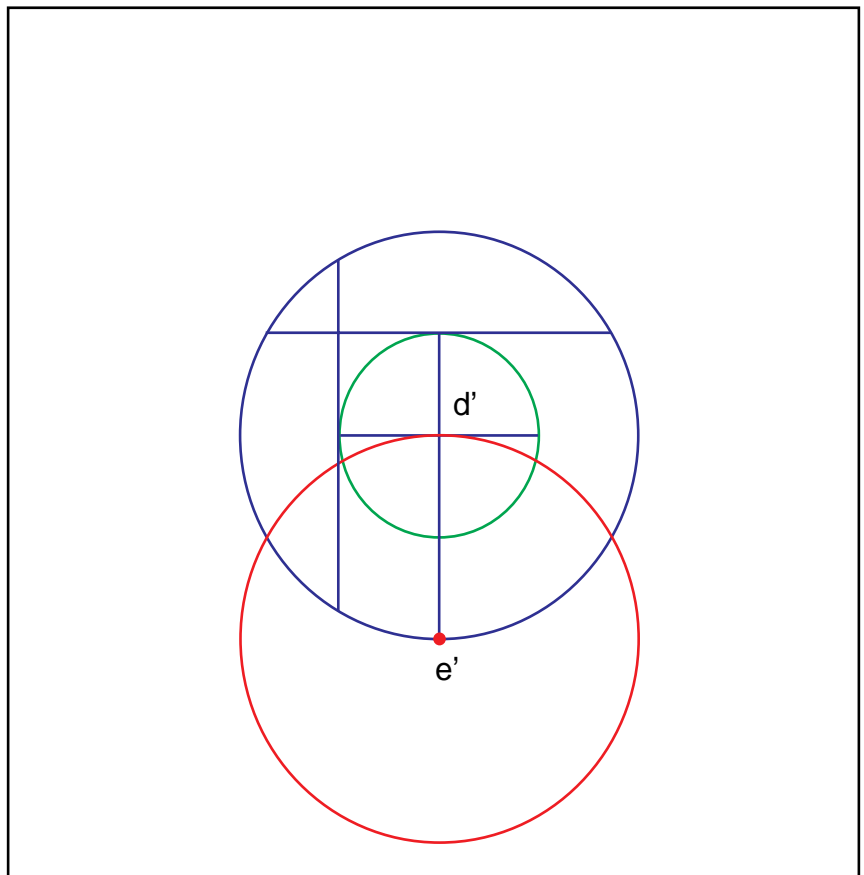


Cleanup.
GOSUB (Third of four times).
Relabel.

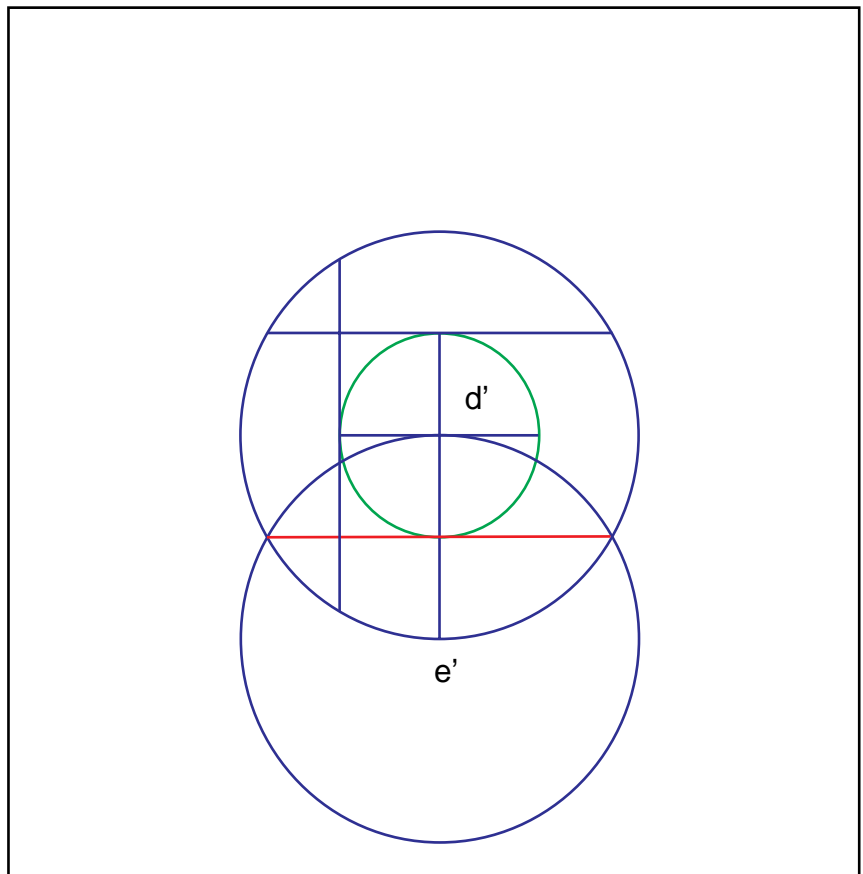
Extend.



Swing $e'd'$ around e' .

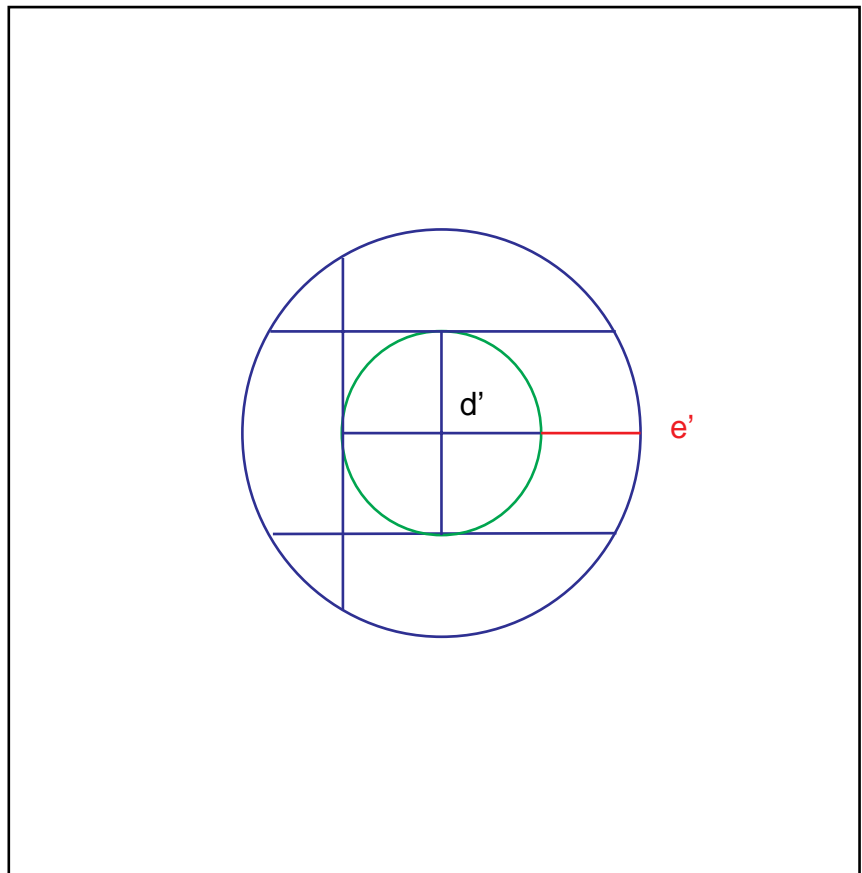


Connect the crossing points.

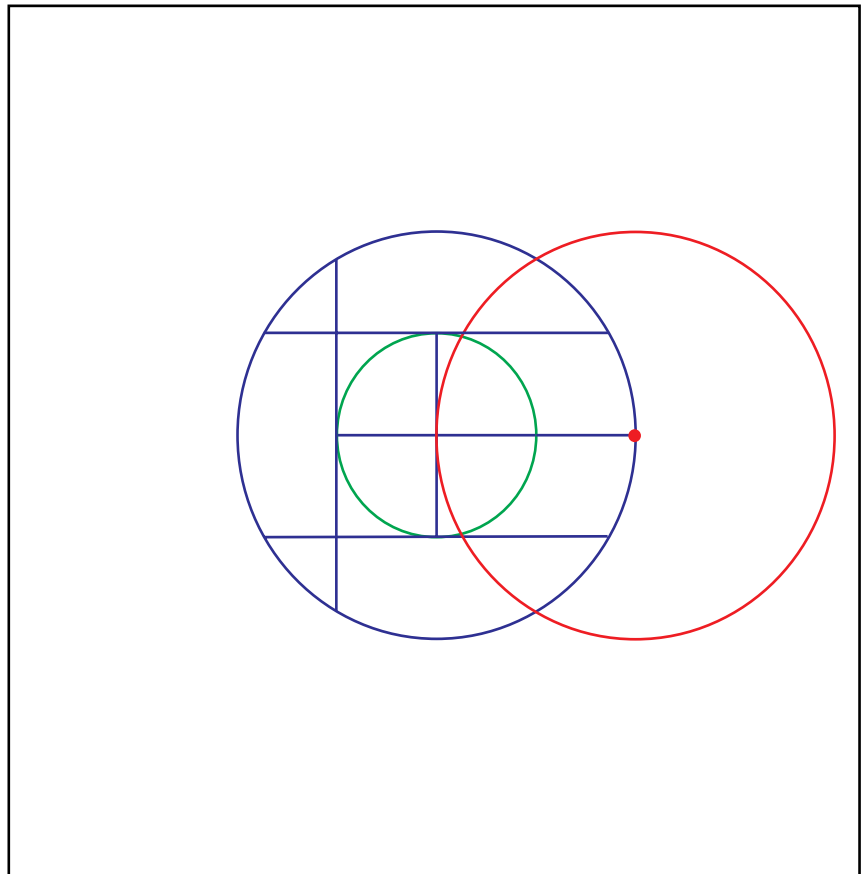


Cleanup.
GOSUB (Fourth and last time.)

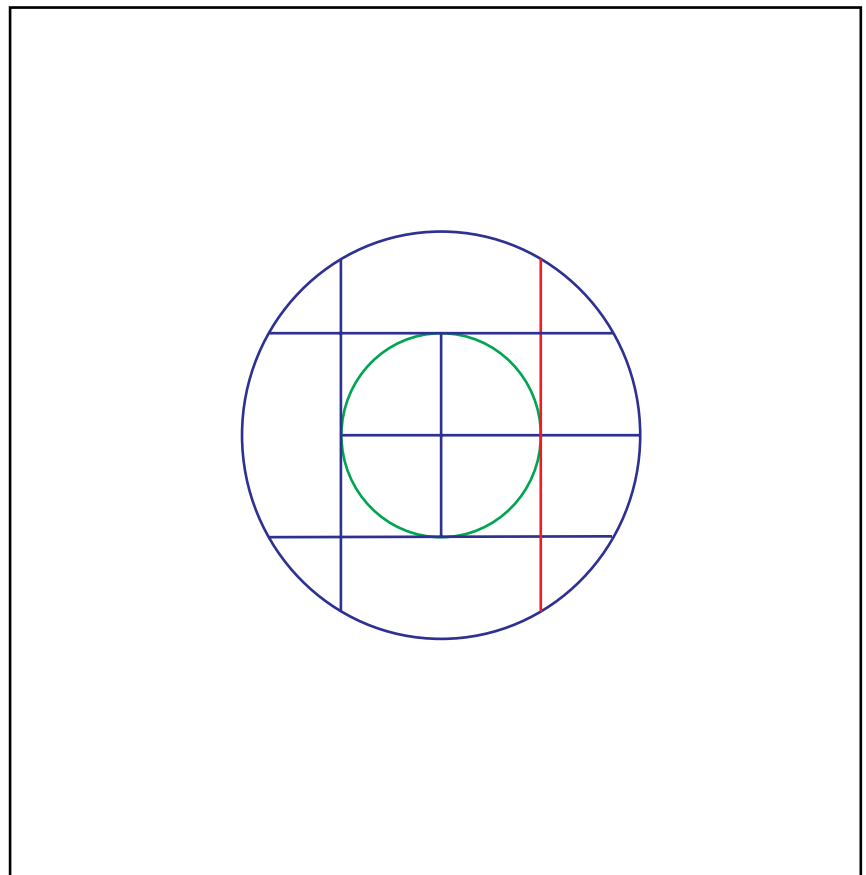
Extend.



Swing.



Connect.



Cleanup.
RETURN to IV.7 at line 7.
Relabel.

DONE.

