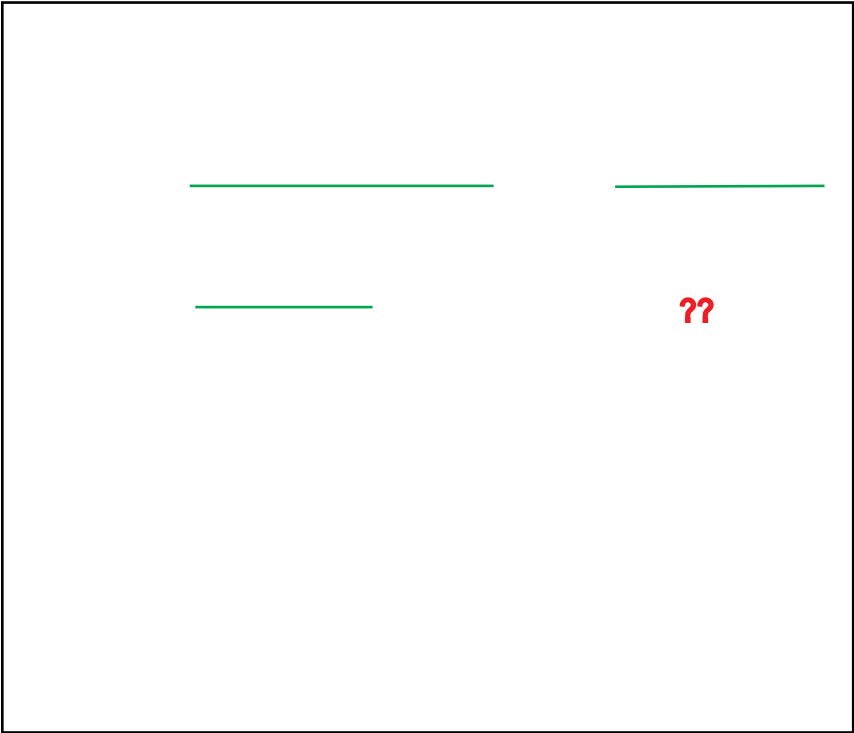
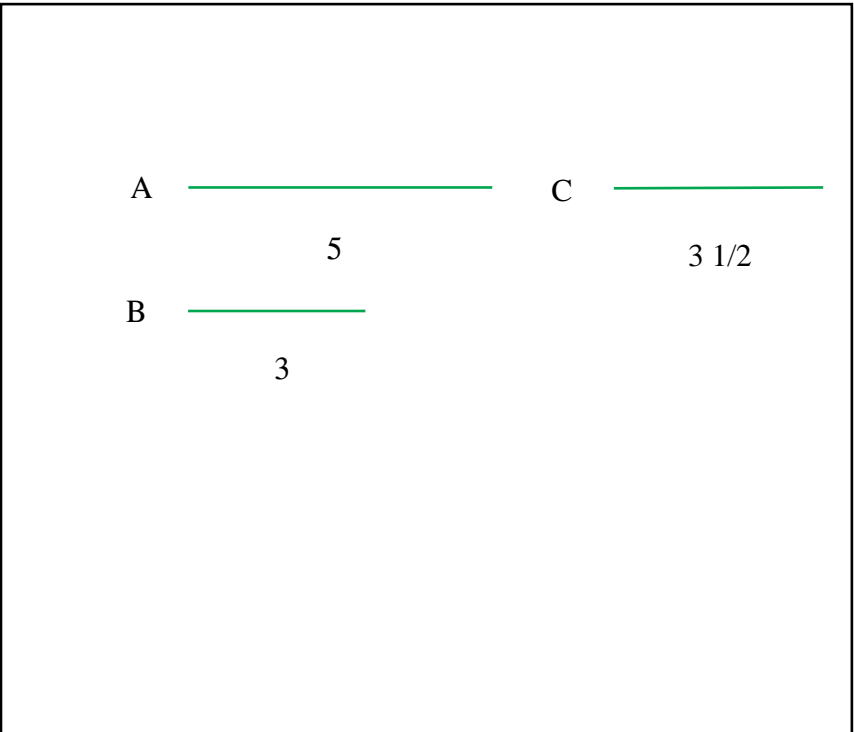


Construction 42: Book VI, Proposition 12

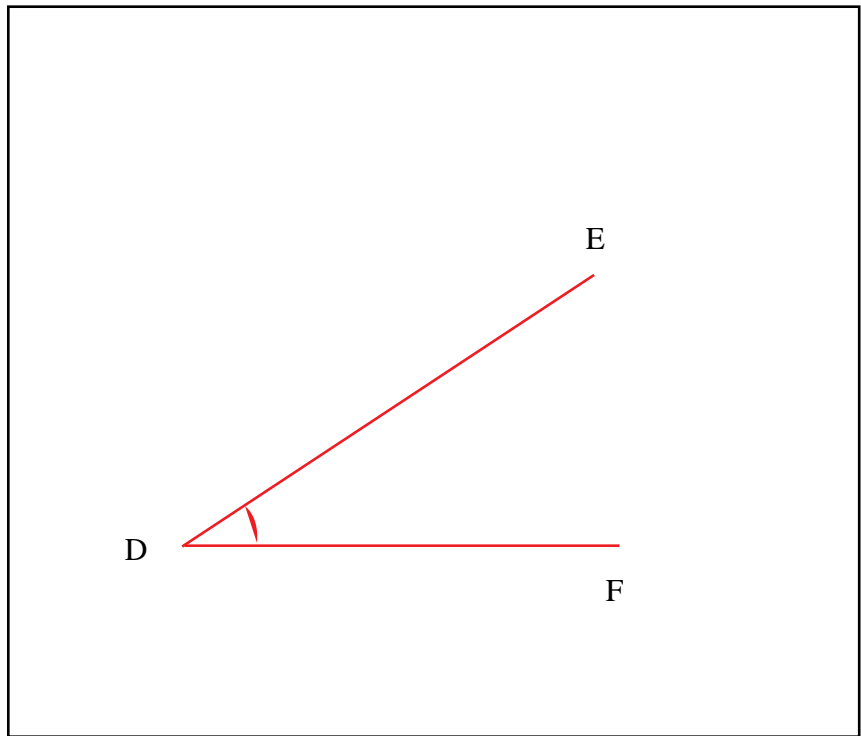
To three given straight lines to find a fourth proportional.



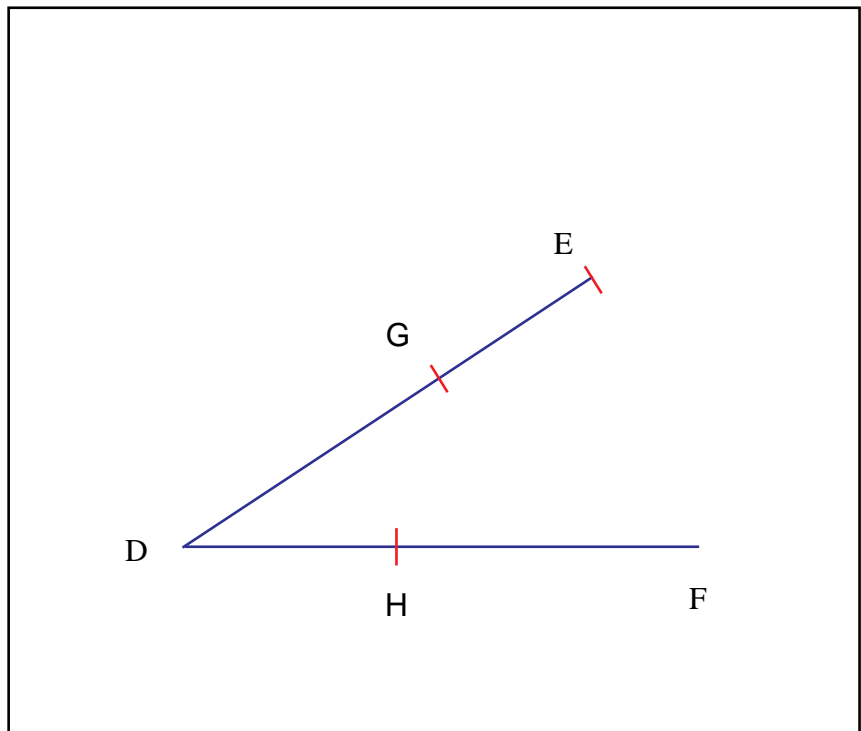
VI.12:2. Let A, B, C be the three given straight lines;



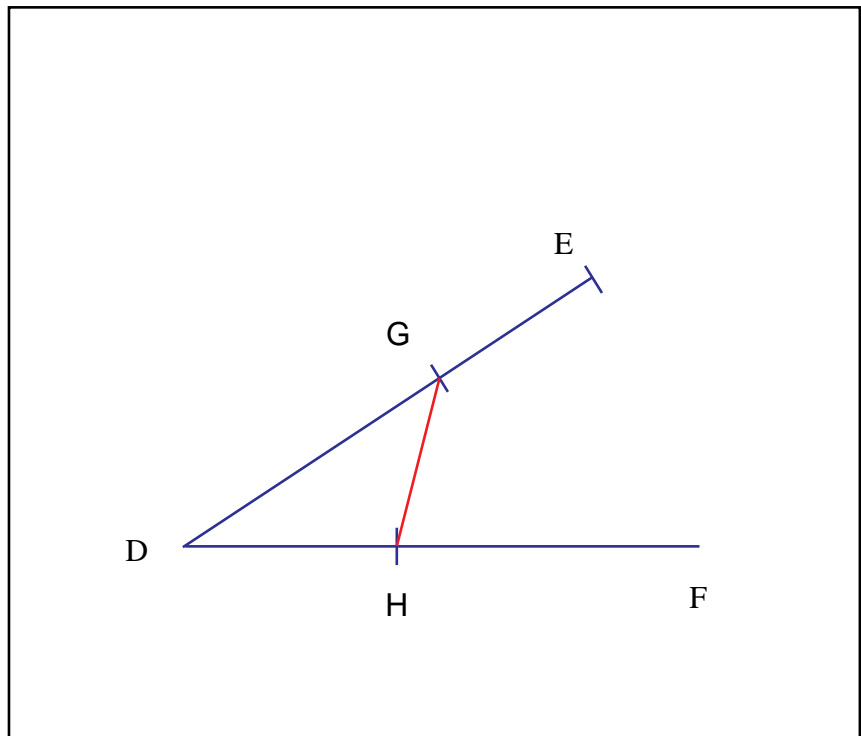
VI.12:4. Let two straight lines
DE, DF be set out containing any
angle EDF;



VI.12:6. let DG be made equal to
A, GE equal to B, and further DH
equal to C;



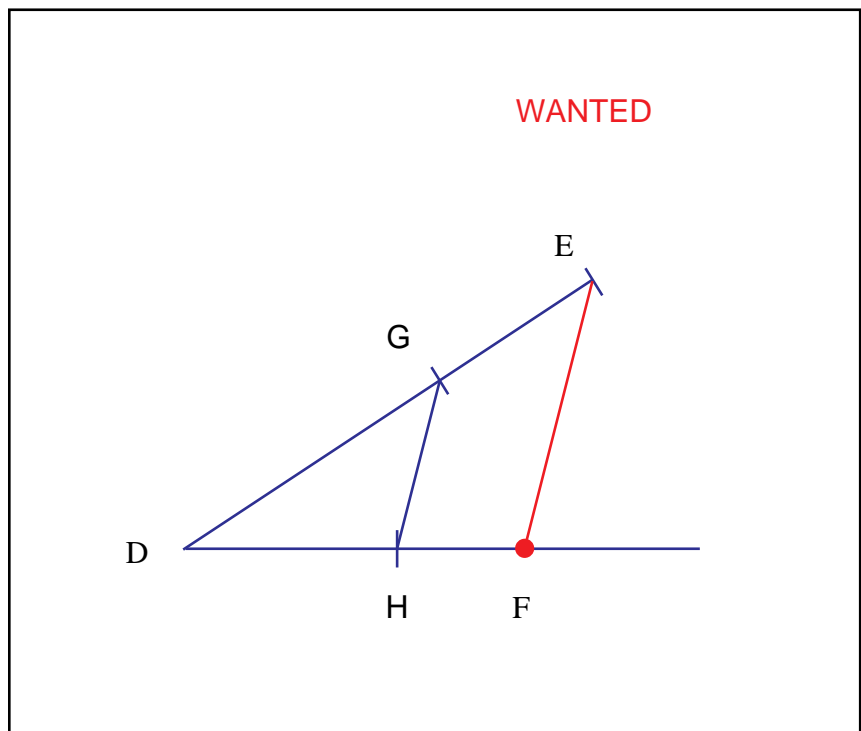
VI.2:8. let GH be joined,



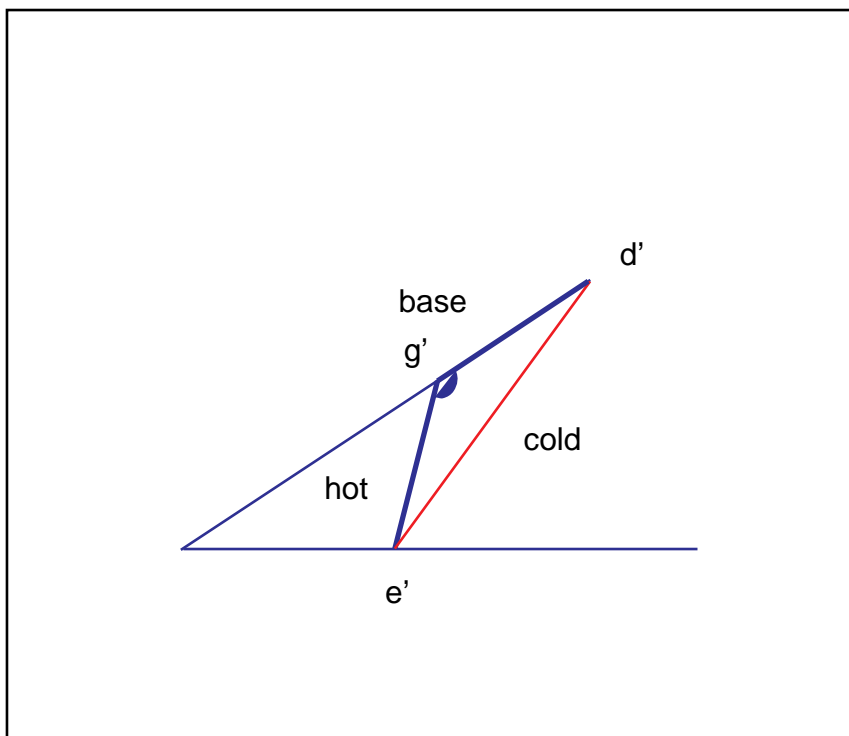
VI.12:8. and let EF be drawn through E parallel to it. [I.37]

GOSUB I.31, C#10.

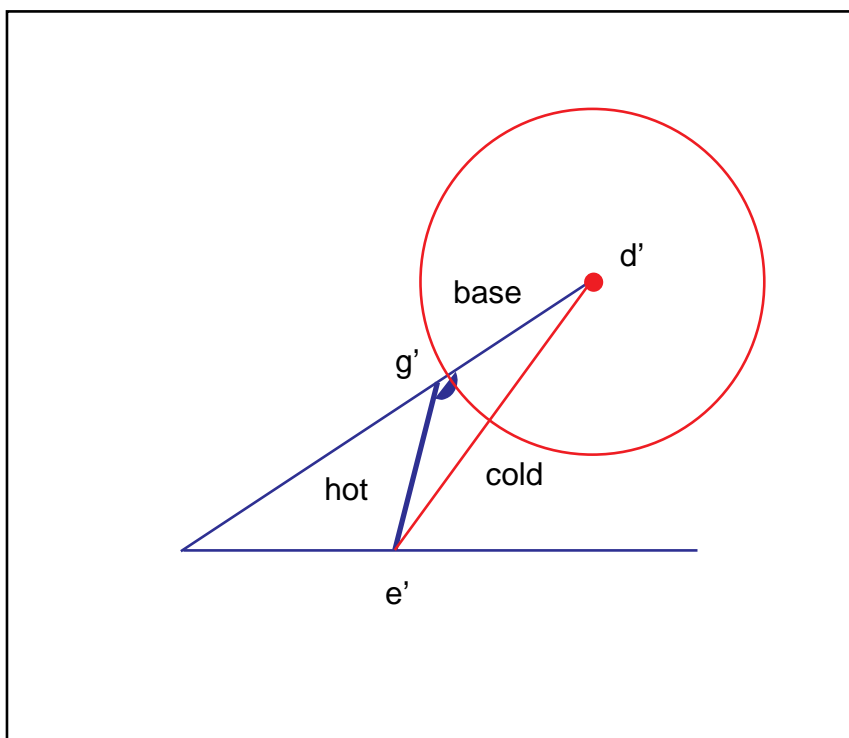
GOSUB I.23, C#
Relabel.



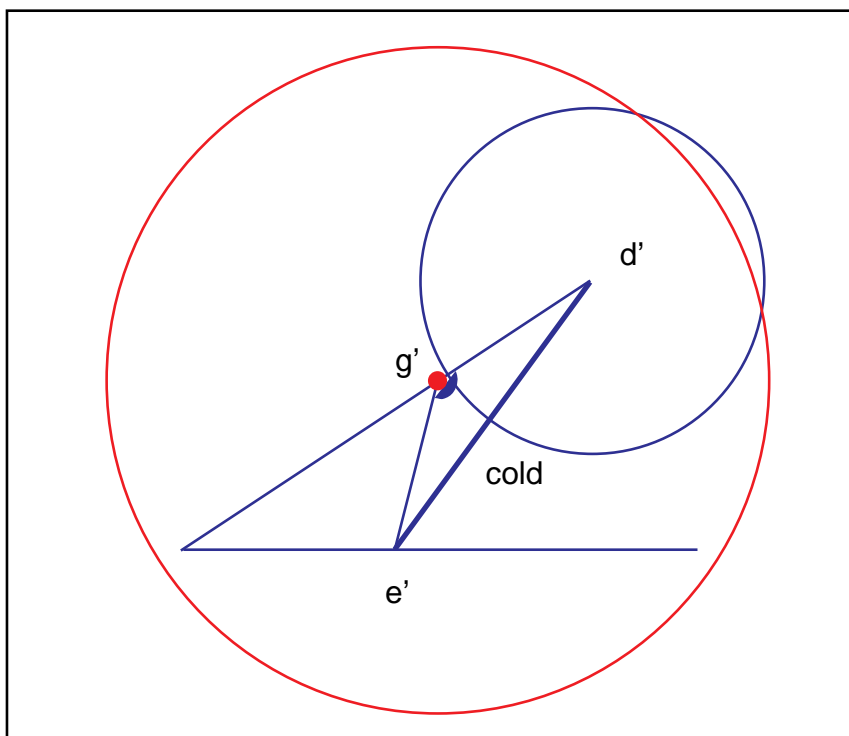
I.23:10. let $d'e'$ be joined.



Rotate the hot arm around d' .

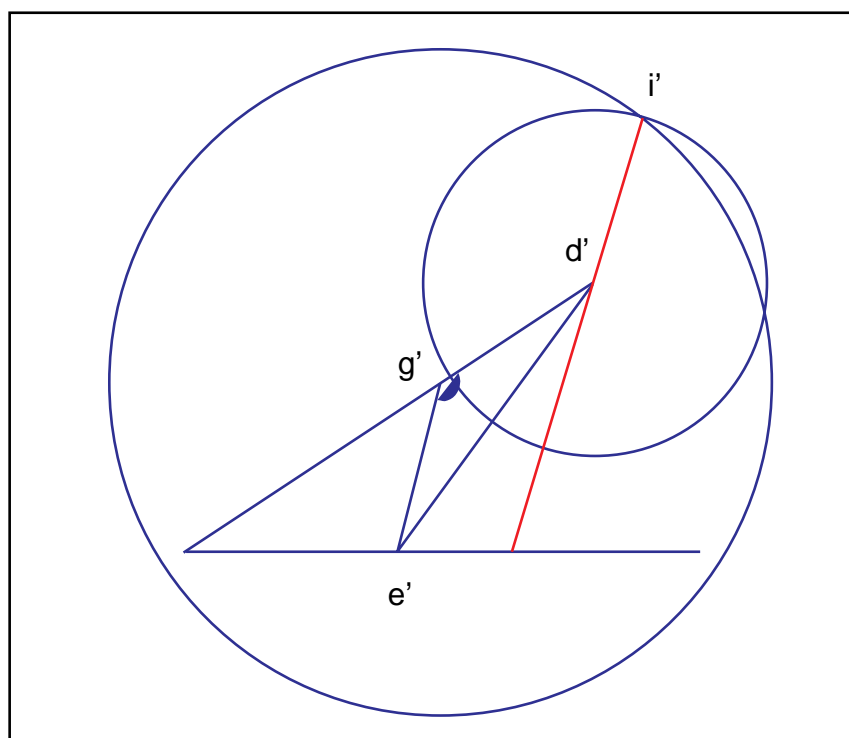


Rotate the cold arm around g' .



VI.12:12. as DG is to GE , so is DH to HF .

Connect the upper crossing to d' and extend.

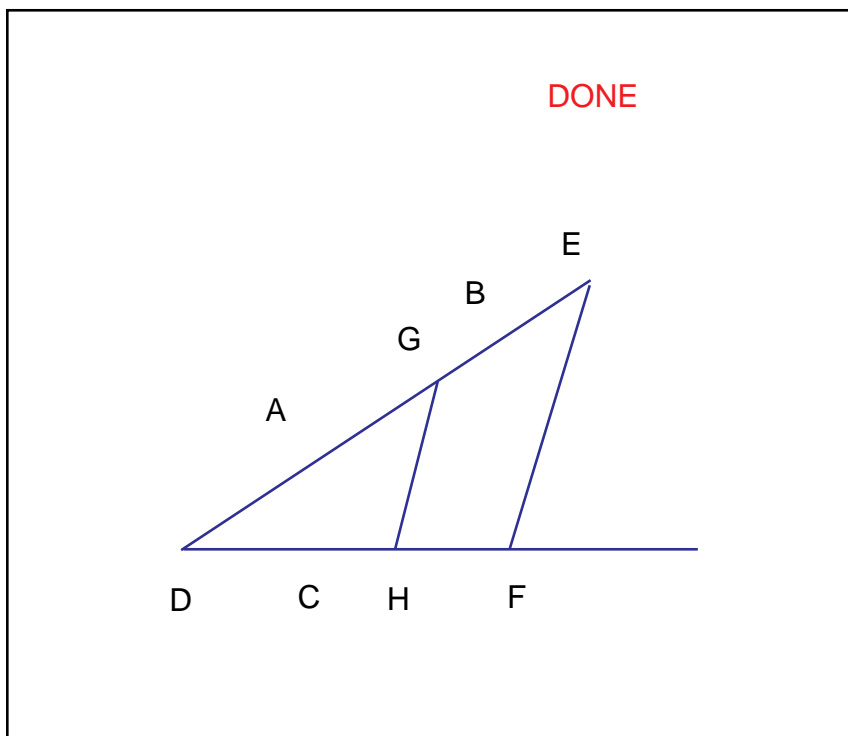


Cleanup.

RETURN to I.31

RETURN to VI.12:8.

Relabel.



VI.12:14. Therefore, as A is to B, so is C to HF.

Q.E.F.

