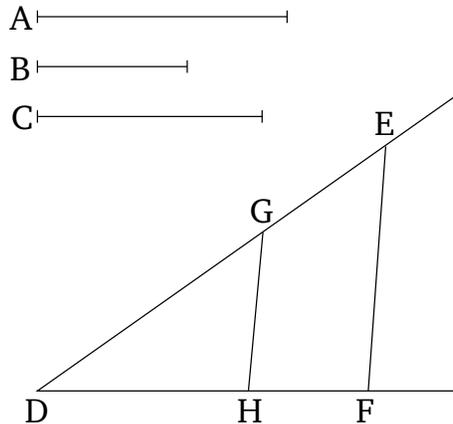


Book 6

Proposition 12

To find a fourth (straight-line) proportional to three given straight-lines.



Let A , B , and C be the three given straight-lines. So it is required to find a fourth (straight-line) proportional to A , B , and C .

Let the two straight-lines DE and DF be set out encompassing the [random] angle EDF . And let DG be made equal to A , and GE to B , and, further, DH to C [Prop. 1.3]. And GH being joined, let EF have been drawn through (point) E parallel to it [Prop. 1.31].

Therefore, since GH has been drawn parallel to one of the sides EF of triangle DEF , thus as DG is to GE , so DH (is) to HF [Prop. 6.2]. And DG (is) equal to A , and GE to B , and DH to C . Thus, as A is to B , so C (is) to HF .

Thus, a fourth (straight-line), HF , has been found (which is) proportional to the three given straight-lines, A , B , and C . (Which is) the very thing it was required

to do.