MT 453 Elements Day 28

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Proposition V.15

*Parts have the same ratio as the same multiples of them taken in corresponding order.*
Given magnitudes $C$ and $F$.
Let $AB$ be in the same multiple to $C$ as $DE$ is to $F$.
Let $DE$ be an equimultiple of $F$.
Because $AB$ and $DE$ are in the same multiples, the number of magnitudes of $C$ in $AB$= the number of magnitudes of $F$ in $DE$.
Then $AG = GH = HB = C; DK = KL = LE = F$.
And so $AG : DK = GH : KL = HB : LE$. (Prop. V.7)
Then $AG + GH + HB : DK + KL + LE$. (Prop. V.12)
Therefore, $nC : nF = C : F$. 

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