

# Euclid - Division of a Monochord

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## Proposition 19

*To mark the monochord according to the so-called immutable system.*

Let there be the length of the monochord, which is also the length of the string, AB,

and let it be divided into four equal intervals by C, D, and E.

There will therefore be BA, which is the lowest note.

This AB is the sesquitertia (4:3) of CB, so CB will be consonant with AB a fourth higher.

AB is also the **proslambanomenos**.

Therefore CB will be the diatonic hypatōn (**lichanos hypatōn**).

Again, since AB is the double of BD, it will be consonant as an octave, and BD will be the **mesē**.

Again, since AB is the quadruple of EB, EB will be the **nētē hyperbolaiōn**.

I cut CB in two at F. And CB will be the duple of FB, so that CB is consonant as an octave with FB. So FB is the **paranētē diezeugmenōn**.

I take DG, the third part of DB. And DB will be the sesquialtera (3:2) of GB, so DB will be consonant with GB as a fifth. Therefore, GB will be the **nētē diezeugmenōn**.

I establish GH equal with GB, so HB will be consonant as an octave with GB, thus HB is the **hypatē mesōn**.

I take HK, the third part of HB. And HB will be the sesquialtera (3:2) of KB, so KB is the **paramesē**.

I take LK, equal with KB, and LB will be the low hypatē (**hypatē hypatōn**).

Therefore, every stationary note of the immutable system will be found in the monochord.

## Proposition 20

*It remains necessary to find the movable notes.*

I cut EB in eight, and one equal part of these I establish EM, so MB becomes the sesquioctave (9:8) of EB.

Moreover, MB divides in eight, and one equal part of these I establish NM.

Therefore, by a tone, NB will be lower than BM, and MB than BE, so NB will be the **trite hyperbolaion**,

and MB the diatonic hyperbolaiōn (**paranētē hyperbolaiōn**).

I take the third part of NB and establish NJ, so JB is the sesquitertia (4:3) of NB and is consonant as a fourth lower, and JB becomes the **tritē diezeugmenōn**.

Moreover, taking the half part of JB, I establish JO, so OB is consonant as a fifth with JB. Therefore, OB will be the **parhypatē mesōn**.

And equal to JO, I establish OP, so PB becomes the **parhypatē hypatōn**.

Now I take of BC a fourth part, CR, thus RB becomes the diatonic mesōn (**lichanos mesōn**).

[Therefore, the moveable notes will be found in the monochord.]