

DRAFT

Newton Sine Series

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Questions to Brainstorm

1. What *exactly* does he mean by 'Moment'?

Line by line analysis of Newton sine series

The Application of what has been said to other Problems of that Kind.

37. Let ABD be any Curve, and $AHKB$ a Rectangle, whose Side AH or BK is Unity :

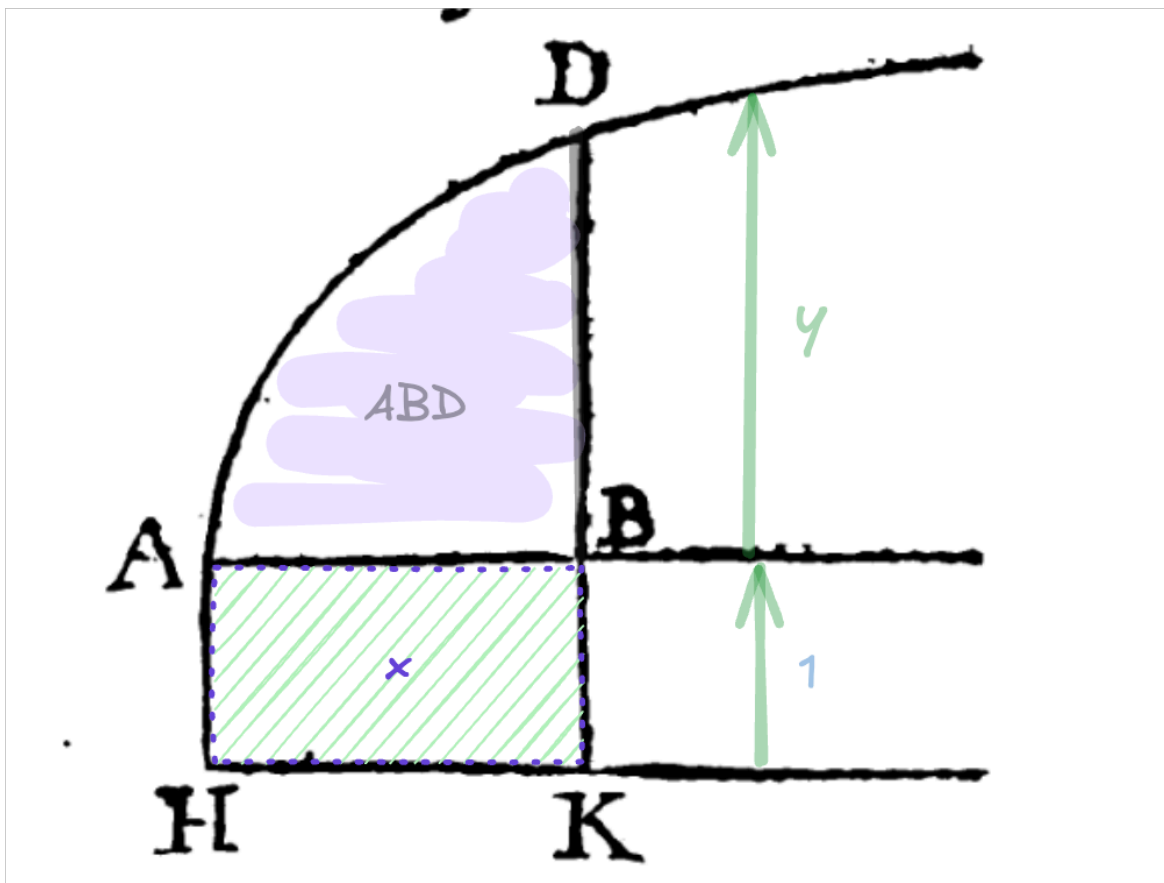
When considering areas under Curves Newton prefers to consider a 2-dimensional x -axis with a side length unity¹

And imagine the Right Line DBK to move uniformly from AH , so as to describe the Areas ABD and AK ; and that BK (1) is the

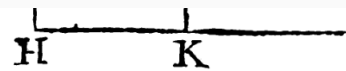
¹We also saw this in Newton's Treatise of the Quadrature of Curves in presentation P1-8

Areas ABD and AK ; and that BK (1) is the Moment with which AK (x), and BD (y) the Moment with which ABD is gradually encreased ; and that from the Moment BD

It is clear from our diagram that x is supposed to have the dimensionality of area, whereas y is supposed to have the dimensionality of length. However, we don't believe that it is merely an idiosyncrasy that Newton wants his x -axes to be two dimensional. As we can see from our diagram, there is an obvious parallel between increasing the area of the rectangle by the 'Moment' 1 and increasing the area of the arbitrary curve by the 'Moment' y .



encreased ; and that from the Moment BD continually given, you can, by Means of the preceding Rules, investigate the Area ABD described by it, or compare it with AK (x), which is described with the Moment 1.



AK is really shorthand for the area $ABKH$. We assume that the 'preceding rules' are the rules of integration.