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Calculus and Analysis > Special Functions > Means

Arithmetic-Harmonic Mean



Let

$$a_{n+1} = \frac{1}{2} (a_n + b_n) \quad (1)$$

$$b_{n+1} = \frac{2 a_n b_n}{a_n + b_n}. \quad (2)$$

Then

$$A(a_0, b_0) = \lim_{n \rightarrow \infty} a_n = \lim_{n \rightarrow \infty} b_n = \sqrt{a_0 b_0}, \quad (3)$$

which is just the [geometric mean](#).

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Weisstein, Eric W. "Arithmetic-Harmonic Mean." From *MathWorld*--A Wolfram Web Resource. <http://mathworld.wolfram.com/Arithmetic-HarmonicMean.html>

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