

Ticks

Ticks are the fundamental unit of accounting within the dex. Each tick is an integer between 352437 and -352437. All tradeable liquidity, in the form of either `PoolReservesOrLimitOrderTranches` is stored at a specific tick. The price of liquidity being stored at tick is determined by the function:

$$p(i) = 1.0001^i$$

Some examples:

- Price of tick0
- :
- 0:
- 0
- :
- p
- (
- 0
-)
- =
- 1.000
- 1
- 0
- =
- 1
- $p(0) = 1.0001^0 = 1$
- p
- (
- 0
-)
- =
- 1.000
- 1
- 0
- =
- 1
- Price of tick1
- 1
- 1
- :p
- (
- -
- 4000
-)
- =
- 1.000
- 1
- 4000
- \approx
- 1.4917
- $p(-4000) = 1.0001^{-4000} \approx 1.4917$
- p
- (
- -
- 4000
-)
- =
- 1.000
- 1
- 4000
- \approx
- 1.4917
-
- Price of tick 2: p
- (
- -
- 4000
-)

- =
- 1.000
- 1
- −
- 4000
- ≈
- 0.6703
- $p(-4000) = 1.0001^{-4000} \approx 0.6703$
- p
- (
- −
- 4000
-)
- =
- 1.000
- 1
- −
- 4000
- ≈
- 0.6703

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More specifically price refers to the rate at which Token1 can be converted to Token0. Logically, the converse rate for converting Token0 to Token1 can be expressed as:

$$price0To1(i) = 1 / 1.0001^i \quad price0To1(i) = 1/1.0001^{\{i\}} \quad price0To1(i)$$

$$= 1/1.0001^i \quad \text{\textcolor{blue}{Previous Fees Next Limit Order Tranches}}$$