

Week 3 · Liquidity, AMMs and yield

The idea in one line

A pool sets the price by keeping $x \cdot y$ constant. Liquidity providers earn fees and take on impermanent loss.

Key terms

Term	Meaning
AMM	A program that trades against a pool, not an order book
Liquidity provider (LP)	Deposits both tokens and earns swap fees
Price impact	How much worse your price gets as your trade grows
Slippage	The price moving between quote and execution
Impermanent loss	LP value vs just holding, after prices move
Concentrated liquidity	Liquidity placed in a price range (Orca, Raydium CLMM)
APR / APY	Simple yearly rate / rate with compounding
Emissions	Rewards paid in a protocol's own token

Three things to remember

1. $x \cdot y = k$. Pool 100 / 100, sell 10 X: you get 9.09 Y (9.066 with a 0.3% fee).
2. Impermanent loss = $2\sqrt{r} / (1 + r) - 1$, where r is the price change. 2x: -5.72%. 4x: -20%.
3. Ask of every yield: who pays it, and in what token?

Do and don't

- Don't assume fees mean profit. Compare fees with impermanent loss.
- Check the mint: Orca's devUSDC is not Circle's devnet USDC.
- Date every APY you quote.

This week's task

Provide liquidity on devnet (route chosen by your mentor).

Fill materials/week-3-liquidity-model.xlsx: swap check, LP vs hold for three price moves, two pools compared.

Blog: "Learning DeFi: my experience with liquidity pools and yield on Solana." Include your IL table.

Deck: /week-3/

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