1) Calculate Difficulty
2) Block creation fee
3) Consensus rules → Block consensus, tx rules

1) Difficulty → How difficult → guess the nonce

- ↳ CPU → hashrate → hash/sec → Mega hash/sec
- ↳ GPU → hashrate → hash/sec → giahash/sec
- ↳ ASIC miners → hashrate → hash/sec → terra

1 Mega = 10^6

100000
1000000000
1000000000 - - -

2009 → very easy to calc nonce

Increased difficulty

2014 → ~~CPU~~ GPU

2019 → ~~GPU~~ ASIC miners

2022 → ✓

Difficulty adjustment
↳ avg time / block is 10 mining
5min

2 weeks

1 week of october → avg mining is 15min
↕
3 week of october → avg time is 10min

10min → 2 weeks

2016×10 min ≈ 2 weeks

2016 blocks →
↓
2016 — 2016 → 2016 - - -

2025
2 - 3 asic

China banned mining
↓
20 - 30 % of miners went offline

decreased

Task

Mastering Bitcoin — Bibles for BTC
Mast Ethereum
Eth pos

Block creation fee

Difficulty change 2016 block

Reward ——→ Ax fees ≈ Lakhs 1-2 tx fees
✓
coinbase / mining reward

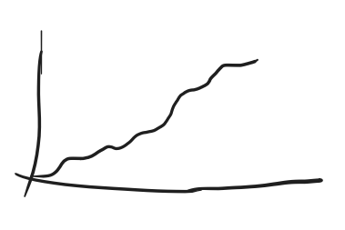
6.25BTC

210000 — 210000 - 210000

certain blocks → fee structure
210000 blocks →

Coinbase reward divided by 2

50
25
12.5
6.25 → control the price



Price of BTC increase

4 year halving cycle

2140 → 21 million
↳ no mining reward

tx fees ↑↑

Create a Company → DAO

Software

Blockchain Demo
BJ Problem BFT → consensus

consensus mechanism → part of blockchain

Architecture
Proof of Concept

Bitcoin Consensus
Proof of work

BTC software

PoW consensus rules

syntactic correctness

Tx
valid sender address
" receiver "
" amount
↓
UTXO

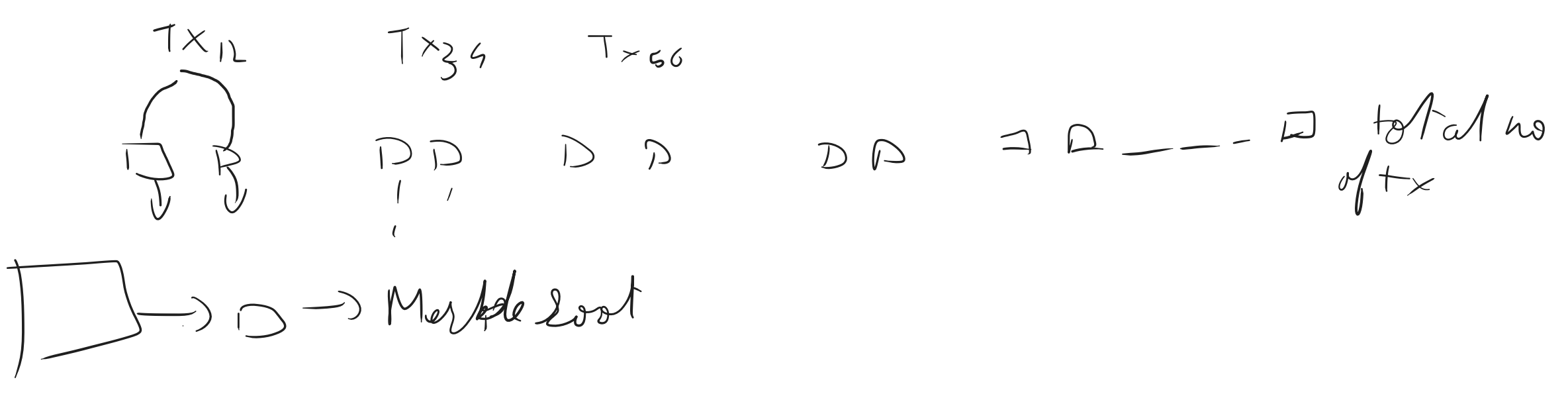
Block
target hash
1 tx → not empty
prev hash
output
Merkle root

Block / target hash
Block no
+
correct nonce
+
all tx hash
+
Prev hash

= Block hash
00000

light node

Tx1 2 3 4 - - - - → Merklehash



Prev hash
output hash

File system

- Modules — json modules
- Events
- Create a server

Node js

2 hrs very imp Node js last class

backend project

Bitcoin Whitepaper → storymode