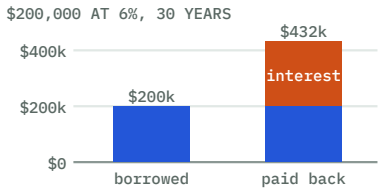
Rent or buy?

What a mortgage costs in all; the yearly cost of owning and the break-even rent; why how long you stay matters; leverage and equity; what US home prices did in 2006-12; the best case for each side.

1 Mortgage

the loan in all

- **Mortgage**: "a long loan to buy a home, with the home as security" → stop paying ⇒ the bank can take it
- Maya: $250,000 home · **20% down** = $50,000 of her own · loan **$200,000**, 30 years (360 payments)
- `payment = L·i ÷ (1 − (1+i)^−360)`, `L` = loan · `i = yearly rate ÷ 12` · 360 = monthly payments → in practice read from a table: per $100,000 → 4% $477 · 5% $537 · **6% $600** · 7% $665
- $200,000 at 6% → **$1,199** a month → $432,000 in all → interest ≈ **$232,000** > the loan · 3% → ≈ $104,000 · 8% → ≈ $328,000
- Year 1: ≈ $11,900 of $14,400 = interest → interest on what is still owed ⇒ the loan shrinks slowly at first · practice: $150,000 at 6% → $900 · $324,000 · ≈ $174,000



2 Cost of owning

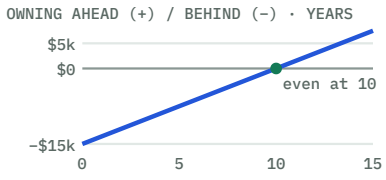
money gone for good

- Count only money **gone for good**: interest · upkeep (repairs) · lost return · (buying and selling costs, row 3)
- **Not** a cost: the part of the payment that repays the loan, and the down payment → they build **equity**
- `interest $12,000 + upkeep 1% $2,500 + 7% on the $50,000 down $3,500 = $18,000` a year → **$1,500** a month
- **Break-even rent**: "the monthly rent at which renting and owning cost the same" `= yearly cost ÷ 12` · rent $1,200 → $14,400 < $18,000 ⇒ renting cheaper · rent $1,800 ⇒ owning cheaper
- Rules of thumb: upkeep ≈ 1% of price · 7% = Lesson 2's long-run stock figure, not a promise · property tax and insurance left out · practice: Ana $19,200 → $1,600

3 How long you stay

transaction costs

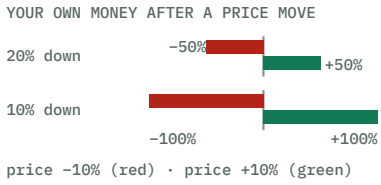
- **Transaction costs**: "what you pay to buy or sell a home: fees, taxes and agents" → often **5-10%** of the price (rule of thumb)
- 6% of $250,000 = **$15,000** · owning $1,500 a year cheaper than rent $1,625 → `years = costs ÷ yearly saving = $15,000 ÷ $1,500 = 10`
- Leave sooner ⇒ owning cost more **in all**, though cheaper every year · practice: $12,000 ÷ $2,000 = 6 years · leave at 4 → $4,000 behind



4 Leverage

borrowing magnifies

- **Equity**: "the home's value minus the loan" `equity = home − loan` · the loan does **not** move with the price
- **Leverage**: "using borrowed money, so that a small change in the price is a big change in your own money"
- 20% down ($50k, loan $200k): price −10% → equity $25,000 (**−50%**) · −20% → $0 · +10% → $75,000 (**+50%**)
- 10% down ($20k, loan $180k): −10% → **$0** (−100%) · −20% → −$20,000 · +10% → $40,000 (**×2**) ⇒ less down → more leverage, both ways



5 2006 → 2012

prices can fall

- **Case-Shiller index**: price of the same US homes over time · Karl Case & Robert Shiller, American economists (Shiller: Nobel 2013)
- US national index (100 = Jan 2000): July 2006 184.6 → February 2012 134.0 = **−27%**
- Toy: bought at the peak, forced to sell → $250,000 − 27% ≈ $182,500 < $200,000 loan ⇒ her $50,000 gone **+** ≈ $17,500 still owed
- Not forced to sell → no loss taken; prices later rose again ⇒ being able to stay matters

6 Two sides

three numbers decide

- Best case for **owning**: loan paid → no rent · each payment builds equity
- Best case for **renting**: leave any time · landlord (owner who rents it out) pays repairs · down payment stays invested → rent also buys these, not "money gone"
- Decide with **3 numbers**: rent vs yearly cost of owning · **how long** you stay · the **price** (and how much is borrowed) · rent caps → Policy Lesson 3
- The numbers do not pick a side for everyone: long stays where prices rose → owners did well · forced sales in 2009 → did not

Watch out: "rent is thrown away" × (it buys freedom, no repairs, the down payment invested) · "homes always rise" × (−27% in 2006-12) · the whole payment is not a cost: the part that repays the loan is equity

This is a lesson, not financial advice. It shows what the evidence says about choices like these; what is right for you depends on your life.