



Why is the “cheap” phone plan expensive?

Debt as compound interest in reverse; the monthly rate on a card; how the size of the payment sets the months and the interest; the minimum-payment trap; comparing loans by APR and total cost; real card and payday rates; when a loan pays for itself.

1

Interest in reverse

the price of borrowing

- **Interest:** the extra paid back for money borrowed now · **APR** (annual percentage rate): “the yearly price of a loan, as a percent of what you borrowed”
- Simple: \$1,000 at 20% for 1 year → 20% of \$1,000 = **\$200**
- **Credit card:** pay for things today, pay the bank back later → unpaid part = a loan · interest each month at $\text{APR} \div 12$, added to the debt → interest on interest **against** you (Lesson 2 in reverse)
- \$600 at 24% → 2% a month → **\$12** · pay \$30 → \$30 – \$12 = \$18 off → owe **\$582**
- Pay = interest (\$12) → debt **never** falls · pay less → debt **grows**

2

Payment → months

the payoff chart

- \$1,000 at 20%: **\$25** a month → **67 months** ($\approx 5\frac{1}{2}$ years), **\$662** interest · \$50 → 25 months, \$227 · **\$100** → **12 months, \$103**
- Payment $\times 4 \rightarrow$ interest $\approx \div 6 \rightarrow$ shorter debt $\Rightarrow$ fewer months of interest
- \$1,200 at 24%: \$120 → 12 months, \$152 · \$30 → **82 months, \$1,238** interest > the \$1,200 borrowed (month 1: \$24 of \$30 is interest)



3

The trap

low minimum payment

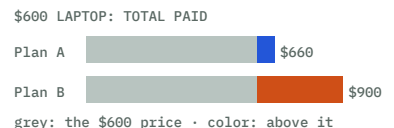
- **Minimum payment:** “the smallest amount the lender lets you pay each month; the rest of the debt keeps growing at the full rate”
- Low minimum → small part cuts the debt → debt stays big longer → interest month after month → big total → good for the **lender**
- **Present bias** (Behavioral Lesson 6): too much weight on now → “\$0 today, \$25 a month” feels small
- Pay later, pay in four, installments, “no money down” = **loans** with a friendlier name

4

Compare loans

APR + total cost

- **Total cost** = $\text{monthly} \times \text{months}$ · compare APR and total, never the monthly amount alone
- \$1,000 phone: **PLAN A** \$89 $\times 12$, APR 12% → $\approx$ **\$1,070** · **PLAN B** \$39 $\times 36$, APR 24% → $\approx$ **\$1,400**
- \$600 laptop: \$55 $\times 12$ = **\$660** (APR $\approx 18\%$) · \$25 $\times 36$ = **\$900** ($\approx 29\%$) → \$60 vs \$300 above the price = **5 $\times$**



5

The evidence

real rates, US

- Federal Reserve (US central bank), G.19 Consumer Credit: card accounts charged interest $\approx$ **22% a year**, late 2025 → \$1,000 for a year $\approx$ \$220 · an average: rates differ by person and card
- **Payday loan:** small loan due next payday (≈ 2 weeks) · CFPB (US Consumer Financial Protection Bureau): \$15 per \$100 → $15\% \times 26 = 390\% \approx$ **almost 400%** a year, if renewed · \$10 per \$100 → $\approx 260\%$

6

Worth it?

return vs cost

- **Return versus cost:** “a loan makes sense, in money terms, only when what it buys earns more than the loan costs”
- **PASSES** \$1,000 at 5% (\$50 a year) → course +\$150 a year · \$800 at 20% (\$160) → tools earn \$400
- **FAILS** phone upgrade, trip, concert, sneakers → earn \$0 · training +\$200 vs \$3,000 at 8% = \$240 → at 5% (\$150) it passes
- Degree, sometimes a house → Lessons 4 and 10

Watch out: lower monthly payment $\neq$ cheaper → often a longer or more expensive loan · and $600 \div 12 = 50$ months forgets interest: \$12 a month on \$600 at 2% never ends