Unit 7 · Housing: Rent or Buy Cheat Sheet

Unit 7 focus: estimate the full cost of renting and owning

1 HOUSING VOCABULARY

Term	Meaning / quick example
Down payment	Upfront part of price paid with your cash.
Mortgage	Loan secured by a home.
Equity	Home value minus mortgage balance.
Closing costs	Transaction costs beyond down payment.

2 MORTGAGE PAYMENT

$$D = \frac{Li}{1-(1+i)^{-N}}$$

L = loan dollars; i = monthly decimal interest rate; N = monthly payments; D = monthly principal and interest.

$i = \frac{r}{12}$; r = annual interest rate.

Price $350,000; 20% down:
Down payment = $70,000; loan = $280,000.

Fixed-rate, no-fee model. At 0% interest, $D = \frac{L}{N}$. Taxes and insurance are extra.

3 MORTGAGE EXAMPLE

Assume $280,000 loan, 6.75% annual interest, 30 years. No points or financed fees.

Example: $i = \frac{0.0675}{12}, \quad N = 360$

Formula: $D = \frac{280{,}000i}{1-(1+i)^{-360}}$

Monthly: $D \approx 1{,}816.07$

Answer: $1,816.07 principal & interest

4 FULL MONTHLY OWNER BUDGET

Cost	Illustrative amount
Principal & interest	$1,816.07
Property tax (1.2% of $350,000 yearly)	$350.00
Insurance ($1,500 yearly)	$125.00
Maintenance reserve (1% yearly)	$291.67
Total modeled cost	$2,582.74

PMI, HOA, utilities or repairs beyond the reserve may add cost. PITI = principal + interest + taxes + insurance; maintenance is separate.

5 AFFORDABILITY IS PERSONAL

$$\text{DTI} = \frac{\text{monthly debt payments}}{\text{gross monthly income}}$$

$2,100 housing debt payment + $300 other debt; gross income $8,000:
$\frac{2{,}400}{8{,}000} = 30\%$ DTI.

Lender definitions and limits vary. Test take-home cash after all essentials, savings and maintenance, not only a gross-income ratio.

6 CASH NEEDED TO MOVE

- Down payment + closing costs + moving costs.
- Keep emergency reserves after closing.
- Renting also may need a deposit, first month's rent and moving costs.
- A refundable deposit ties up cash but is not a permanent cost if fully returned.
- Check which fees and deposits are refundable; do not double-count them.

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More practice: compare time horizons, equity and opportunity cost

1 WHICH HOME OPTION WINS?

One-year model: rent $1,800 monthly. Buy with $2,500 monthly outflow, $4,000 of principal repaid, $6,000 nonrefundable transaction costs.

Example: No price change, tax benefit or opportunity cost; no other costs.
Rent cost: $1{,}800(12) = 21{,}600$
Buy net cost: $2{,}500(12) - 4{,}000 + 6{,}000 = 32{,}000$

Answer: Rent costs $10,400 less here

2 WHAT CHANGES THE ANSWER?

The short-horizon comparison favors renting because transaction costs have little time to spread out.

- Longer stay can spread buying and selling costs.
- Higher rent growth can favor buying.
- Repairs, price declines and investing the down payment can favor renting.
- Space, stability and flexibility may matter more than the modeled dollars.

Run several plausible scenarios.

3 EQUITY IS NOT SPENDABLE CASH

$\text{Equity} = \text{home value} - \text{loan balance}$. Selling costs and debt must be paid to turn it into cash.

Example: Home value $360,000; mortgage $270,000; selling costs assumed 6%.
Equity: $360{,}000 - 270{,}000 = 90{,}000$
Selling costs: $0.06(360{,}000) = 21{,}600$

Answer: $68,400 before other closing items

4 DOWN-PAYMENT ALTERNATIVE

Opportunity cost = growth forgone on money used elsewhere. Hypothetical constant return; no tax or fees.

Example: $70,000 could earn 4% annually for 3 years.
Future value: $70{,}000(1.04)^3 = 78{,}740.48$
Growth forgone: $78{,}740.48 - 70{,}000 = 8{,}740.48$

Answer: $8,740.48 opportunity cost

5 COMPARE ON THE SAME BASIS

Over the same horizon, total cash paid before sale (down payment, closing and monthly outflows) minus net sale proceeds gives a basic net cost.

Net sale proceeds = sale price − remaining mortgage − sale costs.
If sale costs are already subtracted here, do not add them a second time.

Add opportunity cost consistently, or compare full ending net worth. Do not mix the two methods.

6 REMINDERS & MISTAKES

✓ Do remember

- Use the same horizon and housing quality.
- Principal repayment builds equity but still uses monthly cash.

✗ Common mistakes

- Rent is always wasted: it buys housing and flexibility.
- Prices always rise: test flat and falling values.
- Mortgage = cost of owning: add tax, insurance and repairs.
- Count initial equity as profit: subtract the cash invested.