NY REAL ESTATE SALESPERSON EXAM

Real Estate Math Formula Sheet

Every formula tested on the New York Salesperson exam, with worked examples. Print it, save it, study it.

1. Commission

Commission = Sale Price × Commission Rate

Example: Home sells for $500,000 with a 6% total commission. Total commission = $500,000 × 0.06 = $30,000 .

2. Co-Broker / Agent Split

Agent's Take = Total Commission × Brokerage Split × Agent Split

Example: Total commission $30,000. Brokerage gets 50% of the deal ($15,000), agent gets 70% of that split. Agent earns $15,000 × 0.70 = $10,500 .

3. Discount Points

Each Point = 1% of Loan Amount

Example: A $400,000 loan with 2 discount points. Cost = $400,000 × 0.02 = $8,000 . (Points are paid at closing to lower the interest rate.)

4. Loan-to-Value Ratio (LTV)

LTV = Loan Amount ÷ Property Value

Example: $360,000 loan on a $400,000 property. LTV = 360,000 / 400,000 = 90% . (LTVs above 80% usually require PMI on conventional loans.)

5. Down Payment

Down Payment = Purchase Price × Down Payment %

Example: 20% down on $500,000 = $500,000 × 0.20 = $100,000 . Loan amount = $500,000 − $100,000 = $400,000.

6. Prorations (365-day method)

Daily Rate = Annual Amount ÷ 365 Proration = Daily Rate × Days

Example: Annual property tax $4,380. Daily rate = $4,380 / 365 = $12/day. Seller owes 90 days = $12 × 90 = $1,080 . Some questions use the 360-day "banker's year" — read the question carefully.

7. Area & Acres — Essential Conversions

1 Acre = 43,560 sq ft 1 Sq Mile = 640 acres Rectangle Area = Length × Width Triangle Area = (Base × Height) ÷ 2

Example: A lot is 100 ft × 200 ft. Area = 100 × 200 = 20,000 sq ft = 20,000 / 43,560 = 0.46 acres .

8. Capitalization Rate (Cap Rate)

Cap Rate = Net Operating Income (NOI) ÷ Property Value (or rearranged: Value = NOI ÷ Cap Rate)

Example: A building generates $60,000 NOI and sells for $750,000. Cap rate = 60,000 / 750,000 = 8% . To value a property: NOI of $80,000 at an 8% cap rate → 80,000 / 0.08 = $1,000,000 .

9. Gross Rent Multiplier (GRM)

GRM = Sale Price ÷ Monthly Gross Rent (Annual version: GIM = Sale Price ÷ Annual Gross Income)

Example: $300,000 property rents for $2,000/month. GRM = 300,000 / 2,000 = 150 . To value a similar property renting at $2,500/month: $2,500 × 150 = $375,000 .

10. Mill Rate (Property Tax)

Tax = Assessed Value × Mill Rate ÷ 1,000 (1 mill = $1 per $1,000 of assessed value)

Example: Assessed value $200,000, mill rate 25. Annual tax = 200,000 × 25 / 1,000 = $5,000 .

11. Monthly Mortgage Payment (PITI components)

PITI = Principal + Interest + Taxes + Insurance Simple-interest portion: Interest = Loan Balance × Rate × Time

Example: First-month interest example: $300,000 loan at 6% annual rate. Monthly interest = $300,000 × 0.06 / 12 = $1,500 . (Use payment-per-thousand tables on the exam when asked for the full monthly payment.)

12. The T-Method (works on nearly every problem)

Whole × Rate = Part Part ÷ Rate = Whole Part ÷ Whole = Rate

Example: A home sells for $400,000 with a $24,000 commission. What's the commission rate? Rate = Part / Whole = 24,000 / 400,000 = 6% . Draw a T on your scratch paper: cover the value you're solving for and the operation reveals itself.