MATH FORMULAS

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Accrued depreciation:
effective age ÷ total economic life × reproduction cost new = estimated total accrued depreciation
or
reproduction cost new ÷ total economic life = annual depreciation × effective age = estimated total accrued depreciation

Amortizing a mortgage:
principal balance × annual interest ÷ 12 = first month's interest
monthly mortgage payment – first month's interest = payment on principal
beginning principal balance – principal payment = new principal balance

Annual property taxes due:
taxable value × tax rate = annual property taxes due

Buildable lots in a tract:
43,560 square feet per acre × percent available for lots = square feet available for lots per acre
Square feet available for lots per acre × number of acres in tract = total available square feet
Total available square feet ÷ minimum square feet per lot = number of buildable lots in tract

Calculated interest rate:
index + margin = calculated interest rate

Cost depreciation approach:
reproduction cost of the structure – accrued depreciation = depreciated value of the structure
depreciated value of the structure + estimated value of the site = indicated value of the property

Direct capitalization:
capitalization rate × value (or sale price) = net operating income (NOI)
net operating income (NOI) ÷ value (or sale price) = capitalization rate
net operating income (NOI) ÷ capitalization rate = value (or sale price)

Documentary stamp taxes on deeds:
Purchase price (rounded ***UP*** to nearest $100 (if necessary)) x .007 = documentary stamp tax on deeds
- Debit seller

Documentary stamp taxes on promissory notes:
Promissory note (***ALL NOTES***) rounded ***UP*** to nearest $100 (if necessary)) x .0035 = documentary stamp tax on notes
- Debit buyer

Effective gross income (EGI):
(**P**lease - **V**isit = **E**very - **O**ther = **N**ight - **D**ressed = **C**asual)
potential gross income (PGI) – vacancy and collection losses + other income = effective gross income (EGI)

Equity:
current market value – mortgage debt = equity

Gross income multiplier (GIM):
sale price ÷ gross annual income = gross income multiplier (GIM)
gross annual income × market GIM = value

Gross rent multiplier (GRM):
sale price ÷ gross monthly rent = gross rent multiplier (GRM)
rental income × market area GRM = estimated market value

Housing expense ratio (HER):
monthly housing expenses (PITI + MIP) ÷ monthly gross income = housing expense ratio (HER)

Intangible tax on new mortgages:
new loan (***ONLY***) amount × \$.002 = cost of intangible tax
- Debit buyer

Interest on assumed mortgage:
loan balance × interest rate = annual interest ÷ 365 days = daily interest rate
daily interest rate × number of days seller owns property in closing month = proration amount
- Credit buyer, Debit seller

Loan-to-value ratio (LTV):
loan amount ÷ sale price (or value) = loan-to-value ratio (LTV)

Loss:
amount lost on sale ÷ total cost = percentage loss

Net listing:
100% – listing commission percentage = percentage for seller's net
total seller's net ÷ percentage for seller's net = desired sales price

Net operating income (NOI):
(**P**lease - **V**isit = **E**very - **O**ther = **N**ight - **D**ressed = **C**asual)
effective gross income (EGI) – operating expenses = net operating income (NOI)

Overall capitalization rate (OAR):
net operating income (NOI) ÷ value (sale price) = overall capitalization rate (OAR)

Prepaid rent:
rent paid for the closing month ÷ number of days in closing month = daily rental rate
daily rental rate × number of days buyer owns property in closing month = proration amount
- Credit buyer, Debit seller

Profit:
amount made on sale ÷ total cost = percentage profit

Property tax savings:
total exemptions × tax rate = property tax savings
Effective gross income (EGI): (Please - Visit = Every - Other = Night - Dressed = Casual)
potential gross income (PGI) – vacancy and collection losses + other income = effective gross income (EGI)
Net operating income (NOI): (Please - Visit = Every - Other = Night - Dressed = Casual) effective gross income (EGI) – operating expenses = net operating income (NOI)

Sales commission:
sale price × commission rate = total commission
total commission × percentage to listing brokerage = listing commission
listing commission × listing sales associate percentage = listing sales associate commission
total commission × percentage to selling brokerage = selling commission
selling commission × buyer's sales associate percentage = buyer's sales associate commission

Solving Percent Problems:
part ÷ total = rate
part ÷ rate = total
total × rate = part

Straight-line method:
total cost to acquire property – value of the land = depreciable basis
depreciable basis ÷ useful life (27.5 or 39 years) = annual IRS depreciation deduction

Taxable value:
assessed value – homestead exemptions = taxable value

Total obligations ratio (TOR) for conventional mortgage loan:
total monthly obligations (PITI + PIM + LTO) ÷ monthly gross income = total obligations ratio (TOR)

Total obligations ratio (TOR) for FHA:
total monthly obligations (PITI + MIP + LTO) ÷ monthly gross income = total obligations ratio (TOR)

Unpaid property taxes:
property taxes for year ÷ 365 days = daily tax rate
daily tax rate × number of days seller owns property in year = proration amount credit buyer, debit seller

Variable (Index) Lease:
(new index ÷ original index) x original rental rate = new rental rate