SLIDE 1 – Real Estate Computations and Closing (Cover Page)

SLIDE 2 – TOPICS

In this section we will cover the following topics:

I.   Basic Real Estate Computations

II.   Preliminary steps to a closing

III.   Prorated Expenses

IV.   State Transfer Taxes

V.   Other Charges

VI.   Rules of Thumb

VII.   Uniform Settlement Statement

SLIDE 3 – LEARNING OBJECTIVES

Upon completion of this lesson, you should be able to:

- Compute the sales commission
- Calculate the percent of profit or loss, given the original cost of the investment, the sale price and the dollar amount of profit or loss
- Define settlement and title closing
- List the preliminary steps to a closing
- Prorate the buyer's and seller's expenses
- Calculate the dollar amount of transfer taxes on deeds, mortgages and notes
- Allocate taxes and fees to the proper parties and compute individual costs

SLIDE 4 – LEARNING OBJECTIVES – (continued)

- Explain the rules of thumb for closing statement entries
- Explain the major sections of the Uniform Settlement Statement
- Demonstrate ability to read and check the Uniform Settlement Statement for errors

SLIDE 5 – KEY TERMS

Here are some key terms we'll encounter in this lesson:

- **arrears** – monies paid in advance, such as taxes, mortgage interest and utility payments for things that predate the closing date
- **credit** – an amount that a party must receive at closing or that has already been received prior to closing
- **debit** – an amount that one party must pay at closing or has already paid prior to closing
- **level payment plan** – type of mortgage that requires the same dollar payment each month or payment period

- **pre-closing inspection** – the opportunity for the buyer (or his representative) to inspect the home being purchased prior to closing and owning the home
- **principal** – the full amount being borrowed for a mortgage; the part of a monthly payment that reduces the outstanding balance of a mortgage
- **profit** – the positive gain from an investment or business operation after subtracting all expenses
- **proration** – expenses that are either prepaid or paid in arrears that are divided or distributed between buyer and seller at the closing

SLIDE 7 – Basic Real Estate Computations (Cover Page)

SLIDE 8

Solving Math Problems

The four steps to solving every math problem are:

- Read the question
- Write down the formula
- Substitute the relevant numbers
- Calculate

If a problem presents you with fractions or percentages, first convert them into decimal numbers

SLIDE 9

Adding Fractions

1: Formulas:

Same denominator: $\dfrac{a}{c} + \dfrac{b}{c} = \dfrac{a + b}{c}$

Different denominator: $\dfrac{a}{c} + \dfrac{b}{d} = \dfrac{ad + bc}{cd}$

2: Examples: $\dfrac{2}{5} + \dfrac{6}{5} = \dfrac{8}{5}$

$\dfrac{3}{4} + \dfrac{4}{7} = \dfrac{(3 \times 7) + (4 \times 4)}{(4 \times 7)} = \dfrac{37}{28}$

SLIDE 10

Multiplying Fractions

1: Formula: $\dfrac{a}{c} \times \dfrac{b}{d} = \dfrac{ab}{cd}$

2: Example: $\dfrac{4}{9} \times \dfrac{2}{3} = \dfrac{8}{27}$

SLIDE 11

Converting a decimal to a percent

1: Formula:
$$(decimal\ number) \times 100 = percent\ number$$

2: Example:

$$.473 \times 100 = 47.3\%$$
$$3.456 \times 100 = 345.6\%$$
$$.0042 \times 100 = .42\%$$

SLIDE 12

Converting a percent to a decimal

1: Formula:
$$\frac{percent\ number}{100} = decimal\ number$$

2: Examples:

$$\frac{47.3\%}{100} = .473$$

$$\frac{.42\%}{100} = .0042$$

$$\frac{345.6\%}{100} = 3.456$$

SLIDE 13

Converting a fraction to a percent

1: Formula:
$$\frac{a}{b} = a\ divided\ by\ b = decimal\ number$$
$$(decimal\ number) \times 100 = percent\ number$$

2: Examples:

$$\frac{4}{5} = 4\ divided\ by\ 5 = 0.8 = 80\%$$

$$\frac{9}{3} = 9\ divided\ by\ 3 = 3.0 = 300\%$$

SLIDE 14

Converting a percent to a fraction and reducing it

1: Formula:
$$X\% = \frac{X}{100}$$

$$\frac{X \div a}{100} = reduced\ fraction$$

where "a" is the largest number that divides evenly into numerator and denominator. If unknown, try 2, 3, 5, or 7.

2: Example:
$$45\% = \frac{45}{100} = \frac{45 \div 5}{100 \div 5} = \frac{9}{20}$$

Multiplying using percentages

1: Formula: (1) convert percent to decimal by dividing by 100

              (2) whole amount x decimal = partial amount

2: Example: Calculate 33% of 400:

              (1)   33% ÷ 100 = .33

              (2)   400 x .33   = 132

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Percentage Problems

The basic formula for percentage problems is

Part = Whole × Percentage

This can also be expressed as

Whole = Part ÷ Percentage, or

Percentage = Part ÷ Whole

In commission problems, the part is the amount of the commission, the whole is the sales price, and the percentage is the commission rate

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Percentage Formula:

Whole x Percentage (Rate) = Part

W x % = P

P ÷ W = %

P ÷ % = W

A broker earns an $18,000 commission from the sale of a $300,000 house. What was the commission rate?

P ÷ W = %

$18,000 (P) ÷ $300,000 (W) = 0.06 = 6%

Real Estate Applications

Co-brokerage commission

1: Formulas: sale price x commission rate = total commission total

commission x split rate = co-brokerage commission

2: Example: A house sells for $100,000. The commission is 6%, and the co-brokerage split is 50–50.

    $100,000 x 6% x 50% = $3,000 co-broker's commission

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Agent's commission

1: Formulas:
broker's commission x agent's split rate = agent's commission

2: Example:

Assume a $3,000 broker's commission and a 60% agent split rate.

$3,000 x 60% = $1,800 agent's commission

SLIDE 20

"Percentage of listing price" calculation

1: Formula: Percentage of listing price = offer ÷ listing price

2: Example: A property listed for $150,000 receives an offer for $120,000. The percentage of listing price is:

$120,000 ÷ 150,000 = 80%

SLIDE 21

Calculating loan amounts, rates, payments:
(Interest only loans)

1: Formula: interest payment (I) = principal (P) x interest rate (R)

$$I = P \times R$$

$$R = \frac{I}{P}$$

$$P = \frac{I}{R}$$

annual interest payment ÷ 12 = monthly interest payment

monthly interest payment x 12 = annual interest payment

Percentage Problems

In loan problems, the part is the annual interest (you may need to multiply if it is expressed monthly or quarterly), the whole is the loan amount, and the percentage is the annual interest rate

In profit or loss problems, the formula is stated as

> Now = Then × Percentage

(where the percentage is 100% plus the percentage of profit or minus the percentage of loss)

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In capitalization problems, the formula is stated as

Income = Value × Capitalization Rate

(you may need to calculate net income by applying an operating expense ratio to gross income)

Section 14 – Part 2

SLIDE 1

Real Estate Applications

Calculating loan amounts, rates, payments:
(Interest only loans)

2: Example: A $60,000 interest-only loan @ 10% has annual payments of $6,000 and monthly payments of $500.

> Annual interest = $60,000 x 10% = $6,000
> Monthly interest = $6,000 ÷ 12 = $500

The loan amount of an interest-only loan that has an annual interest rate of 8% and a monthly interest payment of $700 is $105,000.

> Annual interest = $700 x 12 = $8,400
> Loan amount = $8,400 ÷ .08 = $105,000

Calculating loan amounts, rates, payments:
Amortizing loans

Calculator Key Strokes (HP10B) – to find monthly payment:

Example:

A borrower obtains a $143,000 amortizing 30-year loan at an annual interest rate of 7.65%. The monthly payment is $1,014.61.

12 [gold] [P/YR]

143,000 [PV]

7.65 [I/YR]

30 [gold] [x P/YR]

[PMT]

SLIDE 3

Calculating loan amounts, rates, payments:
Amortizing loans

Calculator Key Strokes (HP10B) – to find loan amount:

Example:

An individual can afford monthly payments of $950. The loan amount this individual can borrow in a 30-year loan at 8% is $129,469.

12 [gold] [P/YR]

 8 [I/YR]

30 [gold] [x P/YR]

950 [PMT]

[PV]

SLIDE 4

Calculating loan amounts, rates, payments:
Amortizing loans

Calculator Key Strokes (HP10B) – to find annual interest rate:

Example:

A borrower obtains a 30-year loan of $125,000 with monthly payments of $750. The annual interest rate is 6%.

12 [gold] [P/YR]

125,000 [PV]

30 [gold] [x P/YR]

750 [+/-] [PMT]

[I/YR]

Points

1: Formulas: 1 point = 1% (.01) of loan amount

2: Example: A lender charges 3 points on a $72,000 loan. The points charges are:

$$3 \text{ points} = 3\%; .03 \times \$72,000 = \$2,160$$

Seller's Net Problems

A seller's net problem determines how much a property will have to sell for, if a seller wants to net a specified amount

First, add the seller's desired net to the costs of the sale except the commission

Next, subtract the commission rate from 100% (i.e. 100% - 6% = 94%)

Divide the total from step one by the total from step two to find the selling price

Earnest money deposit calculation

1: Formula: Deposit = Listing price x required percentage

2: Example: A seller requires a 2% deposit on a property listed for $320,000. The required deposit is:

$$\$320,000 \times 2\% = \$6,400$$

Tax liability

Formula and example:

net operating income (NOI)	$ 26,000
+ reserves	3,000
- interest expense	15,000
- cost recovery expense	5,000
= taxable income	9,000
x tax rate (28%)	
= tax liability	2,520

Tax rate calculation

1: Formulas: Tax rate (millage rate) =

2: Example: A municipality has a revenue requirement of $10,000,000 after accounting for its revenues from sale of utilities. This requirement has to be covered by property tax. The real estate tax base, after homestead exemptions, is $300,000,000. The tax rate will be:

$$\frac{10,000,000}{300,000,000} = .0333 \text{ or } 33.33 \text{ mills}$$

Homestead exemption calculation

1: Formula and example:

Assessed value	$ 180,000
− Homestead exemption	25,000
= Taxable value	155,000

Taxing the property

1: Formulas: (1) Taxable value of property x tax rate (mill rate)

for each taxing authority in jurisdiction.

Total tax = sum of all taxes by taxing authority

Example:

School tax	$100,000 x 10 mills	=	$ 1,000
City tax	$100,000 x 4 mills	=	400
County tax	$100,000 x 3 mills	=	300
Library tax	$100,000 x 1 mills	=	100
TOTAL TAX			$ 1,800

Special assessments calculation

1: Formula: (1) Identify total costs to be assessed

Calculate prorated share for each property impacted

Multiply cost x prorated share

 2: Example: A canal will be dredged at a cost of $20,000. The improvement affects 30 properties with a total canal frontage of 4,000 feet. One property has 200' of frontage. Its assessment bill will be:

200' ÷ 4,000' = 5% share

$20,000 x 5% = $1,000 assessment

Tax Assessment Problems

Tax assessment problems can be solved using the formula

Tax = Assessed Value × Tax Rate

The tax rate may be expressed, instead of as a percentage, as a dollar amount per hundred or per thousand dollars of assessed value, or as a number of mills (one-tenth of one cent) per dollar of assessed value

Proration Problems

The three steps in a proration problem are to calculate the per diem (daily) rate of the expense, determine the number of days for which the party is responsible, and multiply the per diem rate by the number of days

Proration may be done using either a 365-day year or a 360-day year (a banker's year, where every month
is considered to have 30 days)

In property tax proration problems, the tax year may start some day other than January 1, and the payments may be divided into installments, some of which may have already been paid

In insurance proration problems, a seller has usually prepaid, and will be entitled to a refund of the unused portion

In mortgage interest problems, there are separate calculations for the seller (who will owe interest from the first day of the month when closing occurs, up to the closing date) and the buyer (who will prepay interest from the closing date to the last day of the month when closing occurs)

Prorations – Formulas and rules:

1: Accounting for items paid (or received) in advance vs arrears

	Arrears	Advance	Debit	Credit
Real estate taxes	X		Seller	Buyer
Insurance premiums		X	Buyer	Seller
Rents received by seller		X	Seller	Buyer
Utilities	X		Seller	Buyer

Prorations – Formulas and rules:

2: Whose share is charged to whom?

If seller paid in advance: charge buyer for buyer's portion

If seller received payment in advance, charge seller for
buyer's portion

If buyer will pay in arrears: charge seller for seller's portion

Computing Prorations

12-month / 30 day method –

The 12-month/30-day method determines an average daily rate of payment for an item to be prorated *based on a 30-day month and a 360-day year*.

The method consists of the following steps for annual and monthly items.

Annual Items
1: Identify the total amount to be prorated.
2: Divide this amount by 12 to obtain average monthly rate.
3: Divide the monthly rate by 30 to obtain an average daily rate.
4: Multiply the monthly amount times the seller's number of months of ownership in the year of the sale up to the month of closing. For the month of closing, multiply the seller's number of days of ownership times the daily amount and add the result to the previous result. The final result is the seller's pro rata share of this item.
5: The buyer's pro rata share of an item is the total amount less the seller's pro rata share.

12-month / 30 day method –

Monthly Items
1: Identify the total amount to be prorated.
2: Divide this amount by 30 to obtain average daily amount.
3: Multiply the daily amount times the seller's number of days of ownership. The result is the seller's pro rata share of this item.
4: The buyer's pro rata share of an item is the total amount less the seller's pro rata share.

365 day method –

The 365-day method uses the actual number of days in the calendar. The steps in the calculation are the same for annual and monthly prorations.

The steps are:

Annual & Monthly Items
1: Identify the total annual or monthly amount to be prorated.
2: For an annual proration, divide the total amount by 365 to obtain a daily amount (366 in a Leap Year). For a monthly proration, divide the total amount by the actual number of days in the month to obtain the daily amount.
3: Multiply the daily amount times the seller's number of days of ownership. The result is the seller's pro rata share of the item.
4: The buyer's pro rata share of an item is the total amount less the seller's pro rata share.

Prorations – Example

A rental property closes on January 25 and the closing day is the seller's. The 365-day method will be used for all prorations. Monthly rent already received by seller is $800. Annual real estate taxes to be paid in arrears by buyer are $2,000. Annual insurance paid in advance by seller is $400.

1: Rent proration (monthly)

> Total monthly amount = $800
>
> Daily amount = $800 ÷ 31 = $25.8065
>
> Seller's days = 25; seller's share = $25.8065 x 25 = $645.16
>
> Buyer's share = $800 - 645.16 = $154.84
>
> Credit buyer and debit seller for buyer's share

Prorations – Example

A rental property closes on January 25 and the closing day is the seller's. The 365-day method will be used for all prorations. Monthly rent already received by seller is $800. Annual real estate taxes to be paid in arrears by buyer are $2,000. Annual insurance paid in advance by seller is $400.

2: Tax proration: (annual)

Total annual amount = $2,000

Daily amount = $2,000 / 365 = $5.4795

Seller's days = 25: seller's share = $5.4795 x 25 = $136.99

Buyer's share = $2,000 - 136.99 = $1,863.01

Credit buyer and debit seller for seller's share

Prorations – Example

A rental property closes on January 25 and the closing day is the seller's. The 365-day method will be used for all prorations. Monthly rent already received by seller is $800. Annual real estate taxes to be paid in arrears by buyer are $2,000. Annual insurance paid in advance by seller is $400.

3: Insurance proration: (annual)

Total annual amount = $400

Daily amount = $400 / 365 = $1.0959

Seller's days = 25; seller's share = $1.0959 x 25=$27.40

Buyer's share = $400 - 27.40 = $372.60

Credit seller and debit buyer for buyer's share