## Sales Course

## Chapter 10

## Math Review



## Gold Coast School of Real Estate

Ch. 10
How many acres are in a tract identified as the $N 1 / 2$, of the $S E 1 / 4$, of the $S W 1 / 4$, of the $N 1 / 2$ ?

$$
640 \div 2 \div 4 \div 4 \div 2=10 \text { acres }
$$

Ch. 10
A property measures 420 feet along the highway and contains 12 acres. What is the depth of the tract?

$$
\begin{aligned}
& \text { If } ? \times 420=522,720(12 \times 43,560) \\
& \text { Then } ?=\frac{522,720}{420}=1,244.57
\end{aligned}
$$

Check answer:
$420 \times 1,244.57 \div 43,560=12$ acres

Ch. 10
A builder is developing a $550 \times 970$ piece of property. Each lot will be approximately $80 \times 110$. Setback requirements will be 25,750 sq. feet. The pool will be $80 \times 100$ and the clubhouse will be $75 \times 90$. If each lot sells for $\$ 12,000$, what will be the full amount realized by the builder?

## $550 \times 970=533,500$ sq feet available

533,500<br>- 8,000 (pool)<br>- 6,750 (clubhouse)<br>-25,750 (setback)<br>493,000 available for lots

Then $\frac{493,000}{8800}=56$ lots
$56 \times \$ 12,000=\$ 672,000$

A developer is subdividing a 15 acre tract into lots measuring $80 \times 110$. Each lot has a perimeter of 380 feet and will sell for $\$ 6500$. The developer has allowed 151,800 square feet for required streets and sidewalks. What is the maximum number of salable lots that will be realized?

## $15 \times 43,560=653,400$ sq feet available

$$
\begin{array}{r}
653,400 \\
-151,800 \\
\hline 501,600
\end{array}
$$

$80 \times 110=8800$ sq feet each lot
Then $\frac{501,600}{8800}=57$ lots

## Sales Course

## Chapter 11

## Math Review



## Gold Coast School of Real Estate

A seller wants to net a minimum of 280,000 from the sale of her home. If closing costs are expected to be $\$ 4,000$ and her broker charges a 6\% commission, her home must sell for:

$$
\begin{gathered}
\$ 280,000+\$ 4,000 \div 94 \%(100 \%-6 \%)= \\
\$ 302,127.66
\end{gathered}
$$

# A house listed for $\$ 375,000$, sold for $94 \%$ of the list price. The total commission was 6\%. The commission was split equally between the cooperating brokers. If the selling agent is on a $70 \%$ split, what is the broker's share of the commission? 

$\$ 375,000 \times 94 \% \times 6 \%=\$ 21,150$

$$
\$ 21,150 \div 2=\$ 10,575
$$

$\$ 10,575 \times 30 \%$ (brokers share) $=\$ 3,172.50$

## Sales Course

## Chapter 12

## Math Review



## Gold Coast School of Real Estate

The interest rate on a borrower's loan was 7\%. The buyer also paid 2 points. What was the lenders effective yield?

Each Point increases yield by 1/8\%

$=7.25 \%$

A borrower qualifies for a loan at 6.5\%. Prevailing rate is $7 \%$. How many points will be paid to "buy down" the interest rate on behalf of the buyer?

Prevailing rate

$$
\begin{aligned}
& 7 \% \\
& -6.5 \% \\
& \hline .5 \% \text { or } 4 / 8=4 \text { points }
\end{aligned}
$$

(Each Point increases the lenders yield by 1/8\%)

A couple had a combined gross monthly income of \$4,750, a house payment of $\$ 1,150$ and other monthly obligations including:

Car payments \$285 Student loan \$125<br>Credit card \$550

What are their Housing Expense and Total Obligations Ratio? Do they qualify for a Ioan?

## Payment (PITI)

Gross Monthly = Housing Expense Ratio Income

$$
\frac{\$ 1,150}{\$ 4,750}=.24(24 \%)
$$

PITI + all monthly debts Gross Monthly Income

## = Total Obligations Ratio

$$
\frac{\$ 1,150+\$ 960}{\$ 4,750}=.44(44 \%)
$$

## A property sells for $\$ 200,000$ with a $\$ 40,000$

 down payment. What is the loan to value ratio?$$
\begin{array}{ll}
\mathrm{SP}= & \$ 200,000 \\
\mathrm{DP}= & \$ 40,000 \\
\text { Loan }= & \$ 160,000 \\
\text { LTV }=\frac{\text { Loan }}{\text { Value }}=\frac{\$ 160,000}{\$ 200,000}=\mathbf{8 0 \%}
\end{array}
$$

The loan amount is $\$ 375,000$ and the loan to value ratio is $80 \%$. What is the purchase price of the property?

If ? x 80\% = \$375,000<br>Then \$375,000<br>\$468,750 $80 \%$

## Sales Course

## Chapter 13

## Math Review



## Gold Coast School of Real Estate

Loan $\$ 72,000$ for 30 years at $9.5 \%$ interest
Payments - \$605.42
What is the total amount of interest paid in the third month?

What is the total amount of principal paid in the third month?

What is the balance due after the third month?

|  | Balance | $72,000.00$ |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  | Payment | 605.42 | 605.42 | 605.42 |
| $\frac{\text { Bal x Rate }}{12}$ | Interest |  |  |  |
| Pmt-Int | Principal |  |  |  |
| Bal-Prin | Balance |  |  |  |


|  | Balance | $72,000.00$ |  |  |
| :--- | :--- | :---: | :---: | :---: |
|  | Payment | 605.42 | 605.42 | 605.42 |
| $\frac{\text { Bal x Rate }}{12}$ | Interest | 570.00 |  |  |
| Pmt-Int | Principal | 35.42 |  |  |
| Bal-Prin | Balance | $71,964.58$ |  |  |


|  | Balance | $72,000.00$ | $71,964.58$ |  |
| :--- | :--- | :---: | :---: | :---: |
| $\frac{\text { Bal x Rate }}{12}$ | Interest | 570.00 | 569.72 |  |
| Pmt-Int | Principal | 35.42 | 35.70 |  |
| Bal-Prin | Balance | $71,964.58$ | $71,928.88$ |  |


|  | Balance | $72,000.00$ | $71,964.58$ | $71,928.88$ |
| :--- | :--- | :---: | :---: | :---: |
|  | Payment | 605.42 | 605.42 | 605.42 |
| $\frac{\text { Bal x Rate }}{12}$ | Interest | 570.00 | 569.72 | $569.44^{\star}$ |
| Pmt-Int | Principal | 35.42 | 35.70 | $35.98^{*}$ |
| Bal-Prin | Balance | $71,964.58$ | $71,928.88$ | $71,892.90^{*}$ |

## Sales Course

## Chapter 14

## Math Review



## Gold Coast School of Real Estate

An investor purchased a duplex that was rented for $\$ 475$ per month. The closing will be on March 19 with the day of closing belonging to the buyer. What is the amount of the proration and how will it be entered on the closing statement?
a) $\$ 199.19$, debit seller, credit buyer
b) $\$ 183.87$, debit buyer, credit seller
c) $\$ 275.81$, debit buyer, credit seller
d) $\$ 398.38$, debit seller, credit buyer

## 3/19 <br> 18 days <br> 13 days <br> 3/18 $3 / 19$

## 31 days

\# Days X Rent
$13 \times \$ 475$
= \$199.19

| Seller | Buyer |  |
| :---: | :---: | :---: |
| Debit | Credit | Debit |
| $\$ 199.19$ |  | Credit |

# Property taxes for the year are $\$ 840$. The closing day is July 16 with the day of closing belonging to the seller. Using a 365 day/year, which is the correct entry for the closing statement? 

a) debit seller $\$ 386.63$
b) debit buyer $\$ 386.63$
c) debit seller \$453.37
d) debit buyer \$453.37

## 

365 days


Seller

| Debit | Credit |
| :---: | :---: |
| $\$ 453.37$ |  |


| Debit | Credit |
| :---: | :---: |
|  | $\$ 453.37$ |

Ch. 14
You are reviewing a HUD-1 Uniform Closing Statement and note that the Documentary Stamp Tax on the Deed was $\$ 2,800$. The Stamp tax on the Promissory Note was $\$ 1,120$. What is the loan to value ratio in this transaction?

# S.P. $\div 100 \times \$ .70=\$ 2,800$ <br> (reverse the math sequence) $\$ 2,800 \div \$ .70 \times 100=\$ 400,000$ (Sales Price) 

Mortgage $\div 100 \times \$ .35=\$ 1,120$ (reverse the math sequence) $\$ 1,120 \div \$ .35 \times 100=320,000$ (Loan)

Loan \$320,000<br>Value \$400,000 = 80\%

## Ch. 14

A property sold for $\$ 310,010$ and the buyer assumed the balance of the sellers loan of \$250,000 and received a purchase money mortgage in the amount of $\$ 10,000$ from the seller. What are the total state documentary stamp taxes on the deed?

$$
\begin{aligned}
& \$ 310,010 \div 100=3,100.10 \text { (round up) } \\
& 3,101 \times \$ .70=\$ 2,170.70
\end{aligned}
$$

## Ch. 14

## Selling Price:

Subject to Mortgage:
\$280,210
\$220,000
Assumed Mortgage:
\$ 20,260
Purchase Money Mortgage:
\$ 10,520

## $\$ 280,210 \div 100 \times \$ .70$

$\$ 2,802.10$ (round up) $2,803 \times \$ .70=\$ 1,962.10$
$\$ 10,520 \times .002=$
\$21.04

N
$\$ 10,520 \div 100 \times \$ .35$
$\$ 105.20$ (round up) $106 \times \$ .35=\quad \$ 37.10$ $\$ 20,260 \div 100 \times \$ .35$
$\$ 202.60$ (round up) $203 \times \$ .35=\quad \$ 71.05$
Total State Documentary Stamp Tax = \$2,091.29

A vacant parcel of land is located in the NE $1 / 4$ of the SW $1 / 4$, of the NW $1 / 4$, of the SW $1 / 4$ of Section 17, T18S, R4W. The land is selling for \$15.00 per square foot. Calculate the State Documentary Tax on the Deed.
$640 \div 4 \div 4 \div 4 \div 4=2.5$ acres
$2.5 \times 43,560 \times \$ 15=\$ 1,633,500$
$\$ 1,633,500 \div 100 \times \$ .70=\$ 11,434.50$

## Sales Course

## Chapter 16

## Math Review



## Gold Coast School of Real Estate

A subject property has 4 bedrooms, two baths, 2-car garage and a professionally landscaped lot. A comparable sold for $\$ 218,900$. It has a fireplace and 3 bedrooms. A fireplace is valued at $\$ 1,500$, bedroom at \$7,000 and professional landscaping at $\$ 5,000$. What is the adjusted sales price of the comparable property?

$$
\begin{array}{ll}
\text { CIA/CBS } & \$ 218,900 \\
& +7,000 \\
-1,500 \\
& +5,000 \\
& \$ 229,400
\end{array}
$$

## Ch. 16

You are appraising a 5 year old single family residence. The total living square foot area is 2,700 sq. feet and the garage is 1,000 sq. feet. Cost estimating services base construction cost per sq. ft of livable area at $\$ 72.00$ and $\$ 40.00$ per sq. ft for the garage. Calculate the reproduction cost new of the structure.

$$
\begin{aligned}
& 2700 \times \$ 72.00=\$ 194,400 \\
& 1000 \times \$ 40.00=\frac{+\$ 40,000}{\$ 234,400}
\end{aligned}
$$

# Calculate the reproduction cost of the 

 following property using the CostDepreciation Approach to Value:Lot size:<br>Land Value: Dimensions of structure: Construction per sq. ft est.: Age of building:<br>$200 \times 100$ $\$ 50$ / Sq. ft. $100 \times 125$ \$250<br>7 years Economic life:

$$
100 \times 125 \times \$ 250=\$ 3,125,000
$$

## Ch. 16

## In the previous problem what is the depreciated value of the building?

$3,125,000 \div 60 \times 7=364,583$ total dep.

$3,125,000-364,583=\$ 2,760,417$ dep. value

Joe purchased a building valued at \$295,000 with an estimated 25 year useful life. Joe owns the building for 6 years. Using straight line depreciation find the depreciated value of the building.

Cost<br>-Depreciation<br>Building Value

\$ 295,000<br>$-70,800(295,000 \div 25 \times 6)$<br>\$ 224,200

A property could produce $\$ 100,000$ annually. The operating expenses are $\$ 38,000$ and the vacancy and collection loss is $5 \%$. If overall capitalization rate is $10 \%$ what is the value of the property?

| PGI |
| ---: |
| -VCC |
| EGI |
| - OE |

\$100,000

$$
\frac{-5000}{} \quad(100,000 \times 5 \%)
$$

$$
95,000
$$

$$
\frac{-38,000}{57,000}
$$

$$
\frac{\mathrm{l}}{\mathrm{R}}=\mathrm{V} \quad \frac{\$ 57,000}{10 \%}=\$ 570,000
$$

Using the following information to compute an estimate of value for an income producing property. Round your answer to the nearest dollar.
Ch. 16

Number of Units:
Rental / Unit / Month:
Vacancy \& Collection:
Property Taxes:
Property Insurance:
Variable Expenses:
Monthly Mortgage Payment:
Reserves for Replacements:
Capitalization Rate:

10
\$1,200
$5 \%$ of PGI
18,000
6,000
23,000
11,200
5,500
12\%

# PGI 144,000 ( $10 \times 1,200 \times 12$ months) -VAC $\quad-7,200$ ( $5 \%$ of PGI) <br> EGI 136,800 <br> -OE -52,500 (Taxes + Ins. + VE + Reserve) NOI 84,300 

$\frac{\mathrm{I}}{\mathrm{R} V} \frac{84,300}{12 \%}=\$ 702,500$

A Seller is listing their duplex for 193,000. The annual rent for both units is $\$ 28,800$. What is the value of the duplex using the GRM method based on the following recent sales in the immediate area?

Sale Price<br>\$187,000<br>\$209,000<br>\$179,000<br>Annual Rent (both units)<br>\$26,400<br>\$30,960<br>\$24,960

A Seller is listing their duplex for 193,000. The annual rent for both units is $\$ 28,800$. What is the value of the duplex using the GIM method based on the following recent sales in the immediate area?

$$
\begin{aligned}
& \begin{array}{l}
\text { Sale Price } \\
\$ 187,000
\end{array} \div \quad \begin{array}{l}
\text { Annual Rent (both units) } \\
\$ 209,000 \quad \div 2600=7.08 \\
\$ 179,000 \quad
\end{array} \div \quad \$ 30,960=6.75 \\
& 21 \div 3=7 \\
& 7 \text { (GIM) X } \$ 28,800=\$ 201,600 \\
&
\end{aligned}
$$

## Sales Course

## Chapter 17

## Math Review



## Gold Coast School of Real Estate

What is the operating expense ratio of a property that has an effective gross income of $\$ 138,000$ and net income of $\$ 82,800$ ?

\$138,000-82,800 = \$55,200 (operating exp.)
$\frac{\text { Operating Expenses }}{\text { Effective Gross Income }}=\frac{\$ 55,200}{\$ 138,000}=40 \%$

Two 100 foot lots were purchased for Ch. 17 $\$ 20,000$ each. The two lots were divided into 3 lots and sold for $\$ 250$ per front foot. What was the percentage of profit?

Made
= Percentage of Profit or Loss

Paid: $\quad \$ 40,000$ (two 100 ft . lots for $\$ 20,000$ each) Sold: $\quad \$ 50,000$ (200 ft. x $\$ 250$ per front foot) Made: $\$ 10,000(\$ 50,000-\$ 40,000=\$ 10,000)$

## $\frac{\text { Made }}{\text { Paid }} \frac{\$ 10,000}{\$ 40,000}=25 \%$ Profit

Three $60 \times 80$ lots were purchased for $\$ 7.50$ sq/ft. The lots were sold for $\$ 60,000$ each. What was the percentage of profit?
$\frac{\text { Made }}{\text { Paid }}=$ Percentage of Profit or Loss
Paid: $\quad \$ 108,000(60 \times 80 \mathrm{ft} \times \$ 7.50$ sq. ft $\times 3$ lots) Sold: \$180,000 (3 lots @ \$60,000 each) Made: $\$ 72,000(\$ 180,000-\$ 108,000=72,000)$
$\frac{\text { Made }}{\text { Paid }} \quad \begin{aligned} & \$ 72,000 \\ & \$ 108,000\end{aligned}=67 \%$ Profit

A 100-unit apartment building sold for $\$ 3,000,000$. Closing costs are $\$ 26,300$ and the land represents $30 \%$ of value. How much depreciation can be taken each year for income tax purposes?
\$3,000,000

+ 26,300
$+\quad$
$\$ 3,026,300 \times 70 \%($ bldg $\%)=\$ 2,118,410$

$$
\$ 2,118,410 \div 27.5=\$ 77,033.09
$$

Ch. 17
If the IRS annual depreciation allowance for a small shopping plaza, containing 12 stores is $\$ 25,000$, and the land represents $20 \%$ of the purchase price, the purchase price was:

$$
\begin{aligned}
& \$ 25,000 \times 39=\$ 975,000 \\
& \text { If ? } \times 80 \%=\$ 975,000 \\
& \text { Then } \frac{\$ 975,000}{80 \%}=\$ 1,218,750
\end{aligned}
$$

## Sales Course

## Chapter 18

## Math Review



## Gold Coast School of Real Estate

# If the property tax rate is 35 mills, how would it be expressed as a decimal? 

## MILLS

## MOVE BACKWARDS THREE SPACES


35. MILLS $=.035$

## Calculating Property Taxes \$50,000 or Less

1) Assessed
Value $x$ Tax Rate $=$ Liability
\$25,000 Homestead Exemption
2) Base exemption $(25,000) \times$ Tax rate $=$ Total (city/county/school) Savings

3) Tax liability (1) minus total savings (2) = Property Taxes

Calculating Property Taxes From \$50,001 to \$75,000
$\begin{array}{llll}\text { 1) Assessed } \\ \text { Value } & \text { Tax Rate } & \text { Tax } \\ \text { Liability }\end{array}$
\$50,000 Homestead Exemption
2) Base exemption
$(25,000)$
x
Tax rate (city/county/school)
3) Assessed Value
over $\$ 50,000$
x
Tax Rate
city/county)
4) Tax liability (1) minus total savings (2 \& 3)

Calculating Property Taxes From \$75,001 and Up

| 1) Assessed |  |  |
| :--- | :--- | :--- |
| Value | $x \quad$ Tax Rate | $=$ | | Tax |
| :---: |
| Liability |

Value
$\$ 50,000$ Homestead Exemption
2) Base exemption $(25,000)$
3) Additional $\$ \mathbf{2 5 , 0 0 0}$

Assessed Value

Tax rate = (city/county/school)
x
Tax Rate
(city/county)
4) Tax liability (1) minus total savings (2 \& 3)

The city decided to add a sidewalk in one neighborhood and is assessing all local owners to pay for this improvement. If a property owners lot is $85 \times 150$ feet, and the cost per front foot is $\$ 90$ :

1) How much will the owner save if the city is paying $30 \%$ ?
2) What is the owners portion of the special assessment?

3) $\$ 7,650 \times 70 \%=\$ 5,355$

$$
\$ 5,355 \div 2=\$ 2,677.50
$$

