

Sales Course

Chapter 10

■ Math Review ■



Gold Coast School of Real Estate

How many acres are in a tract identified as the N¹/₂, of the SE ¹/₄, of the SW ¹/₄, of the N¹/₂?

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

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

$$\text{If } ? \times 420 = 522,720 \text{ (12} \times 43,560\text{)}$$

$$\text{Then } ? = \underline{522,720}$$

$$420 = 1,244.57$$

Check answer:

$$420 \times 1,244.57 \div 43,560 = 12 \text{ acres}$$

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

550 X 970 = 533,500 sq feet available

533,500

- 8,000 (pool)

- 6,750 (clubhouse)

- 25,750 (setback)

493,000 available for lots

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

56 X \$12,000 = \$672,000

A developer is subdividing a 15 acre tract into lots measuring 80 X 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?

$$15 \times 43,560 = 653,400 \text{ sq feet available}$$

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

$$80 \times 110 = 8800 \text{ sq feet each lot}$$

$$\text{Then } \frac{501,600}{8800} = 57 \text{ lots}$$

Sales Course

Chapter 11

■ Math Review ■



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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:

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

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?

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

$$\text{\$21,150} \div 2 = \text{\$10,575}$$

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

Sales Course

Chapter 12

■ Math Review ■



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

Each Point increases yield by 1/8%

$$\frac{1}{8} = .125$$

$$\frac{2}{8} = .25 + 7(\text{rate})$$

$$= 7.25\%$$

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	7%
Buyer qualifies	<u>-6.5%</u>
“Buydown”	.5% or 4/8 = 4 points

(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
Credit card	\$550

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

Payment (PITI)

Gross Monthly Income = Housing Expense Ratio

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

PITI + all monthly debts = Total Obligations Ratio
Gross Monthly Income

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

A property sells for \$200,000 with a \$40,000 down payment. What is the loan to value ratio?

SP = \$200,000

DP = \$ 40,000

Loan = \$160,000

$$\text{LTV} = \frac{\text{Loan}}{\text{Value}} = \frac{\$160,000}{\$200,000} = 80\%$$

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

$$\text{If } ? \times 80\% = \$375,000$$

$$\text{Then } \frac{\$375,000}{80\%} = \$468,750$$

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	
	Payment	605.42	605.42	605.42
$\frac{\text{Bal x Rate}}{12}$	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[*]
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

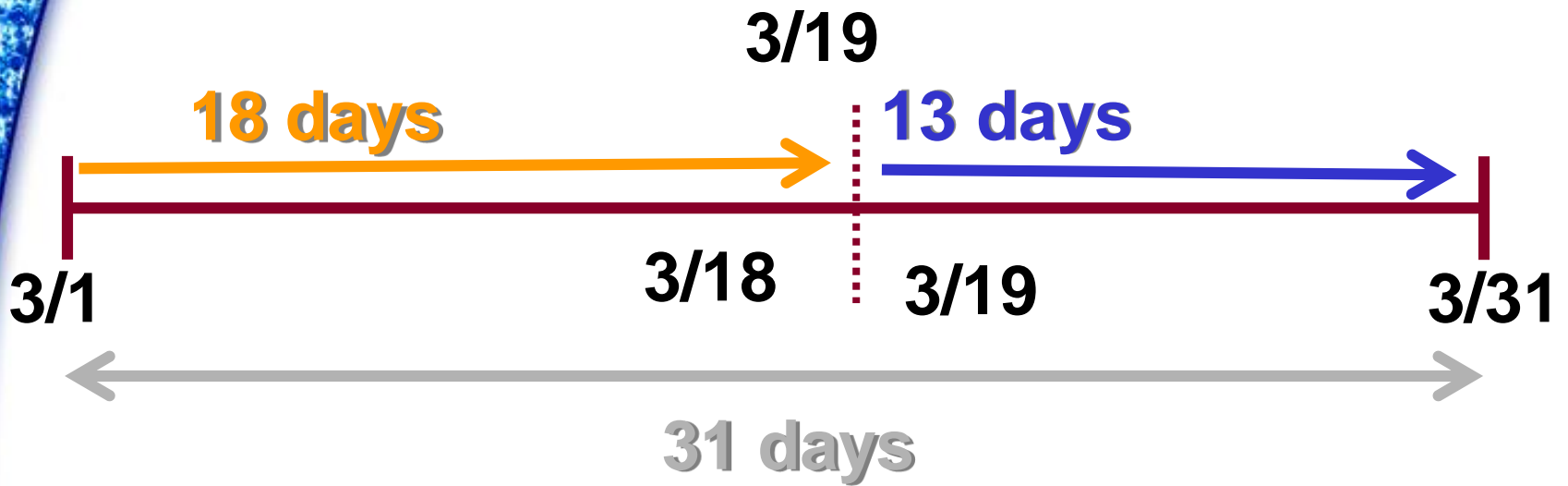
■ Math Review ■



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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**

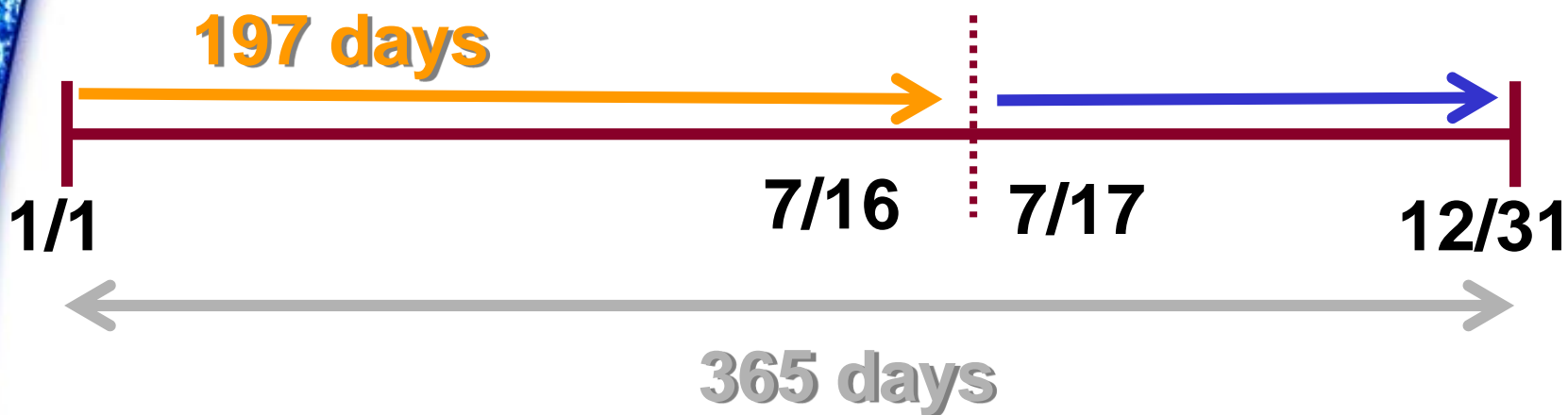


$$\frac{\# \text{ Days X Rent}}{31} = \frac{13 \times \$475}{31} = \$199.19$$

Seller		Buyer	
Debit	Credit	Debit	Credit
\$199.19			\$199.19

**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**



$$\frac{\# \text{ Days X taxes}}{365} = \frac{197 \times \$840}{365} = \$453.37$$

Seller		Buyer	
Debit	Credit	Debit	Credit
\$ 453.37			\$ 453.37

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?

$$\text{S.P.} \div 100 \times \$0.70 = \$2,800$$

(reverse the math sequence)

$$\$2,800 \div \$0.70 \times 100 = \$400,000 \text{ (Sales Price)}$$

$$\text{Mortgage} \div 100 \times \$0.35 = \$1,120$$

(reverse the math sequence)

$$\$1,120 \div \$0.35 \times 100 = 320,000 \text{ (Loan)}$$

Loan \$320,000

Value \$400,000 = 80%

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?

$$\text{\$310,010} \div 100 = 3,100.10 \text{ (round up)}$$

$$3,101 \times \text{\$.70} = \text{\$2,170.70}$$

Selling Price: **\$280,210**

Subject to Mortgage: **\$220,000**

Assumed Mortgage: **\$ 20,260**

Purchase Money Mortgage: **\$ 10,520**

S $\$280,210 \div 100 \times \$.70$
 $\$2,802.10$ (round up) $2,803 \times \$.70 = \$1,962.10$

I $\$10,520 \times .002 =$ **\$21.04**

N $\$10,520 \div 100 \times \$.35$
 $\$105.20$ (round up) $106 \times \$.35 =$ **\$37.10**

$\$20,260 \div 100 \times \$.35$
 $\$202.60$ (round up) $203 \times \$.35 =$ **\$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 NW1/4, 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.

$$640 \div 4 \div 4 \div 4 \div 4 = 2.5 \text{ acres}$$

$$2.5 \times 43,560 \times \$15 = \$1,633,500$$

$$\$1,633,500 \div 100 \times \$.70 = \$11,434.50$$

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?

<u>CIA/CBS</u>	\$218,900
	+7,000
	-1,500
	<u>+5,000</u>
	\$229,400

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.

$$2700 \times \$72.00 = \$194,400$$

$$1000 \times \$40.00 = \underline{+\$40,000}$$

$$\underline{\$234,400}$$

Calculate the reproduction cost of the following property using the Cost-Depreciation Approach to Value:

Lot size:	200 x 100
Land Value:	\$50 / Sq. ft.
Dimensions of structure:	100 x 125
Construction per sq. ft est.:	\$250
Age of building:	7 years
Economic life:	60 years

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

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

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

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

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	\$ 295,000
<u>-Depreciation</u>	<u>- 70,800</u> (295,000 ÷ 25 X 6)
Building Value	\$ 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	\$100,000	
<u>- VC</u>	<u>-5000</u>	(100,000 X 5 %)
EGI	95,000	
<u>- OE</u>	<u>-38,000</u>	
NOI	57,000	

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

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

P 310-312

Number of Units:	10
Rental / Unit / Month:	\$1,200
Vacancy & Collection:	5% of PGI
Property Taxes:	18,000
Property Insurance:	6,000
Variable Expenses:	23,000
Monthly Mortgage Payment:	11,200
Reserves for Replacements:	5,500
Capitalization Rate:	12%

PGI	144,000	(10 x 1,200 x 12 months)
<u>-VAC</u>	<u>-7,200</u>	(5% of PGI)
EGI	136,800	
<u>- OE</u>	<u>-52,500</u>	(Taxes + Ins. + VE + Reserve)
NOI	84,300	

$$\frac{\underline{\text{I}}}{\text{RV}} \quad \frac{\underline{84,300}}{12\%} = \$702,500$$

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**\$187,000****\$209,000****\$179,000****Annual Rent (both units)****\$26,400****\$30,960****\$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?

<u>Sale Price</u>		<u>Annual Rent (both units)</u>	
\$187,000	÷	\$26,400	= 7.08
\$209,000	÷	\$30,960	= 6.75
\$179,000	÷	\$24,960	= <u>7.17</u>
			21

$$21 \div 3 = 7$$

$$7 \text{ (GIM)} \times \$28,800 = \$201,600$$

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?

$$\begin{array}{r}
 \text{EGI} \qquad \qquad \qquad \$138,000 \\
 \text{-OE} \qquad \qquad \qquad - \quad ? \\
 \hline
 \text{NOI} \qquad \qquad \qquad \$ 82,800
 \end{array}$$

$$\$138,000 - 82,800 = \$55,200 \text{ (operating exp.)}$$

$$\frac{\text{Operating Expenses}}{\text{Effective Gross Income}} = \frac{\$55,200}{\$138,000} = 40\%$$

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

$$\frac{\text{Made}}{\text{Paid}} = \text{Percentage of Profit or Loss}$$

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

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

Three 60 x 80 lots were purchased for \$7.50 sq/ft. The lots were sold for \$60,000 each. What was the percentage of profit?

$$\frac{\text{Made}}{\text{Paid}} = \text{Percentage of Profit or Loss}$$

Paid: \$108,000 (60 x 80 ft x \$7.50 sq. ft x 3 lots)

Sold: \$180,000 (3 lots @ \$60,000 each)

Made: \$ 72,000 (\$180,000 - \$108,000 = 72,000)

$$\frac{\text{Made}}{\text{Paid}} \quad \frac{\$72,000}{\$108,000} = 67\% \text{ Profit}$$

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

\$3,026,300 x 70% (bldg %) = \$2,118,410

\$2,118,410 ÷ 27.5 = \$77,033.09

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:

$$\text{\$25,000} \times 39 = \text{\$975,000}$$

$$\text{If ?} \times 80\% = \text{\$975,000}$$

$$\text{Then } \frac{\text{\$975,000}}{80\%} = \text{\$1,218,750}$$

Sales Course

Chapter 18

■ Math Review ■

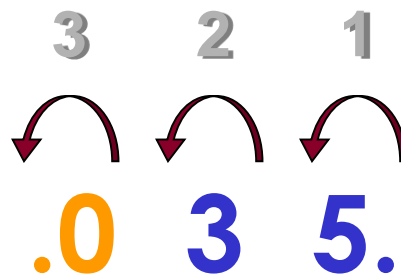


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If the property tax rate is 35 mills, how would it be expressed as a decimal?

MILLS

**MOVE BACKWARDS
THREE SPACES**



$$35. \text{ MILLS} = .035$$

Calculating Property Taxes

\$50,000 or Less

$$1) \text{ Assessed Value} \times \text{Tax Rate} = \text{Tax Liability}$$

\$25,000 Homestead Exemption

$$2) \text{ Base exemption (25,000)} \times \text{Tax rate} = \text{Total Savings}$$

(city/county/school)

$$3) \text{ Tax liability (1) minus total savings (2) = Property Taxes}$$

Calculating Property Taxes From \$50,001 to \$75,000

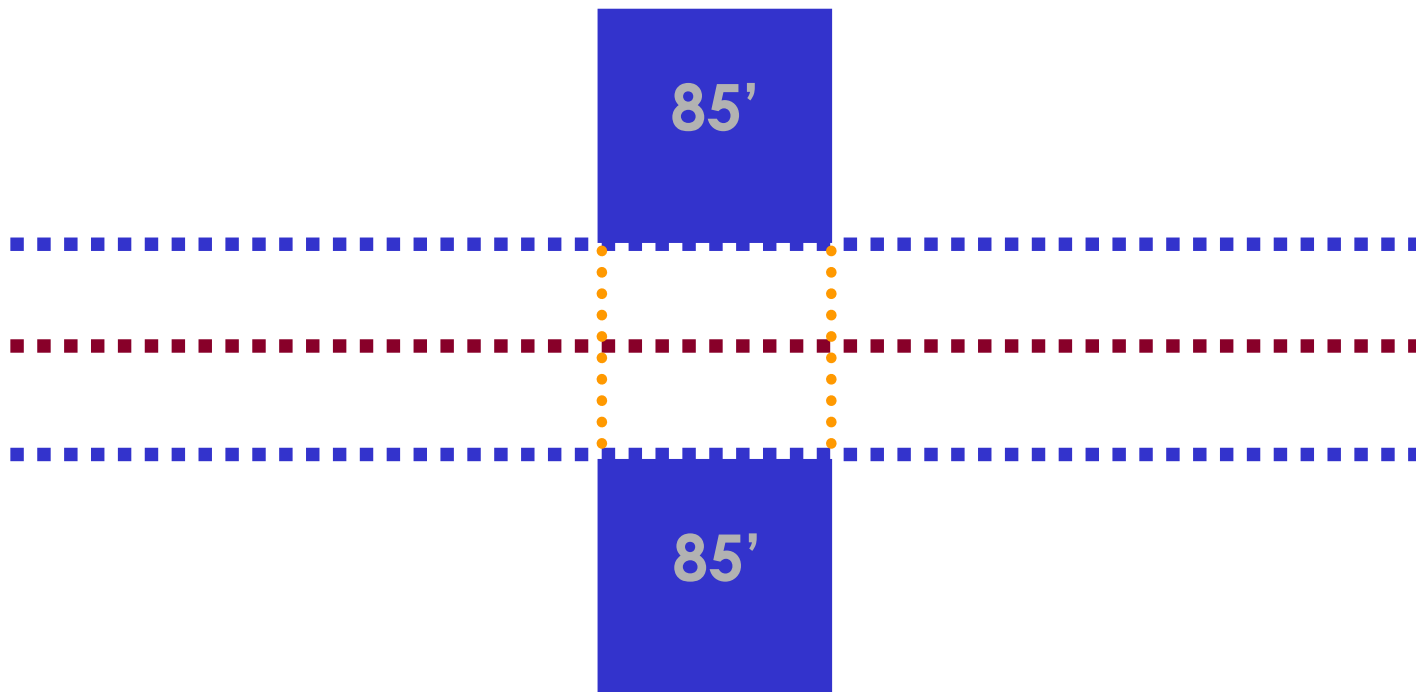
- 1) Assessed Value \times Tax Rate = Tax Liability
- \$50,000 Homestead Exemption
- 2) Base exemption (25,000) \times Tax rate (city/county/school) = Savings from 1st 25,000
- (+) plus
- 3) Assessed Value over \$50,000 \times Tax Rate (city/county) = Savings from 2nd 25,000
Total Savings
- 4) Tax liability (1) minus total savings (2 & 3) = Property Taxes

Calculating Property Taxes From \$75,001 and Up

- 1) Assessed Value x Tax Rate = Tax Liability
- \$50,000 Homestead Exemption
- 2) Base exemption (25,000) x Tax rate (city/county/school) = Savings from 1st 25,000
- (+) plus
- 3) Additional \$25,000 Assessed Value x Tax Rate (city/county) = Savings from 2nd 25,000
Total Savings
- 4) Tax liability (1) minus total savings (2 & 3) = Property Taxes

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 x 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?**



$$85' \times \$90 = \$7,650$$

$$1) \$7,650 \times 30\% = \$2,295$$

$$\$2,295 \div 2 = \$1,147.50$$

$$2) \$7,650 \times 70\% = \$5,355$$

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