Appraiser Certification Exam Review

Local Government Services

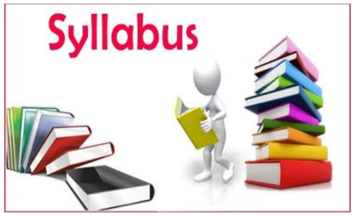
Updated 3/29/2022

Study Material

- Department of Taxation's Website
  - https://tax.nv.gov/LocalGovt/LGS_Home_page/
  - Appraiser Education and Testing link on the left
  - Class Presentations and Handouts link about halfway down the page
- Nevada Property Tax: Elements and Application
  - https://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Elements_and_Applications/
- NRS 360
- NRS 361 and NRS 361A
- NAC 361 and NAC 361A
- Nevada Constitution Section 10
- Personal Property Manual
- Marshall/Swift Commercial & Residential Manuals - Introductions
- IAAO Courses
  - Course 101 – Fundamentals of Real Property Appraisal
  - Course 102 – Income Approach to Valuation
- IAAO Property Assessment Valuation Book

Light Green Font:

1. General Definitions Relating to Taxation and Appraisal
2. General Statutes and Regulations
3. Important Dates
4. General Appraisal Theory
5. Mathematical Formulas to calculate:
    1. Tax Rates and
    2. Assessment Levels



Purple Font:

1. Personal Property Definitions
2. Personal Property Statutes and Regs
3. Important Dates
4. Mathematical Formulas to calculate:
    1. Tax Rates
    2. Replacement Cost New
    3. Depreciation
    4. Taxable Value
    5. Assessed Value and
    6. Taxes Due

Orange Font:

1. Real Property
2. Land Definitions
3. Land Statutes and Regulations
4. Land Classification
5. Land Identification and
6. Land Valuation

Pink, Dark Green and Blue Fonts.

1. Pink Titles focus on:
    1. Cost Approach
    2. Depreciation and
    3. Obsolescence
2. Dark Green Titles focus on:
    1. Sales Approach
3. Blue Titles focus on:
    1. Income Approach

Ad Valorem Tax (Property Tax)

A tax that is based on the value of the property.

- Maximum Tax Rate = 5 cents per $1 of assessed value (State Constitution, Article 10) but…
- Must not exceed $3.64 per $100.00 of assessed value (NRS 361.453)
- Rate of Assessment = 35% of taxable value (NRS 361.225)
- Assessment Ratio = Assessed Value / Taxable Value
- Nominal Tax Rate
  - Levy Amount / Assessment Amount = Nominal Tax Rate

Effective Tax Rate

- Formula: Effective Tax Rate = Tax Rate * Assessment Level
  - (Example: Tax Rate is .02874 * Assessment Level is 35% = Effective Tax Rate of .010059)
  - If the assessed value increases or decreases and the tax rate increases or decreases, the tax amount due will fluctuate

Scenarios

We are going to use the following as our original scenario:

Assessed Value = 1,000

Tax Rate = .02874

Taxes = 1,000 * .02874 = $28.74

Scenario 1

If the assessed value increases and the tax rate increases, then taxes increase

Assessed Value = 1,200

Tax rate = .0291

Taxes = 1,200 * .0291 = $34.92

Assessed Value ↑ Tax Rate ↑

Scenario 2

If the assessed value remains the same and the tax rate increases, then the taxes increase

Assessed Value = 1,000

Tax rate = .0291

Taxes = 1,000 * .0291 = $29.10

Assessed Value **Original** Tax Rate

Scenario 3

If the assessed value decreases and the tax rate remains the same the taxes decrease

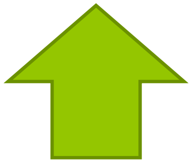
Assessed Value = 900
Tax Rate = .02874
Taxes = $900 * .02874 = $25.87

Assessed Value ↓ Tax Rate **Original**

Scenario 4

If the assessed value increases and the tax rate remains the same the taxes increase

Assessed Value = 1,200
Tax Rate = .02874
Taxes = $1,200 * .02874 = $34.49

Assessed Value  Tax Rate **Original**

Scenarios Summary

Original: Taxes = $1,000 * .02874 = $28.74
Scenario 1: Taxes = $1,200 * .02910 = $34.92
Scenario 2: Taxes = $1,000 * .02910 = $29.10
Scenario 3: Taxes = $ 900 * .02874 = $25.87
Scenario 4: Taxes = $1,200 * .02874 = $34.49

Taxable Value

- NRS 361.045 defines taxable value as all property of every kind and nature whatever within this state
- A value set on real and personal property as a basis for calculating assessed value

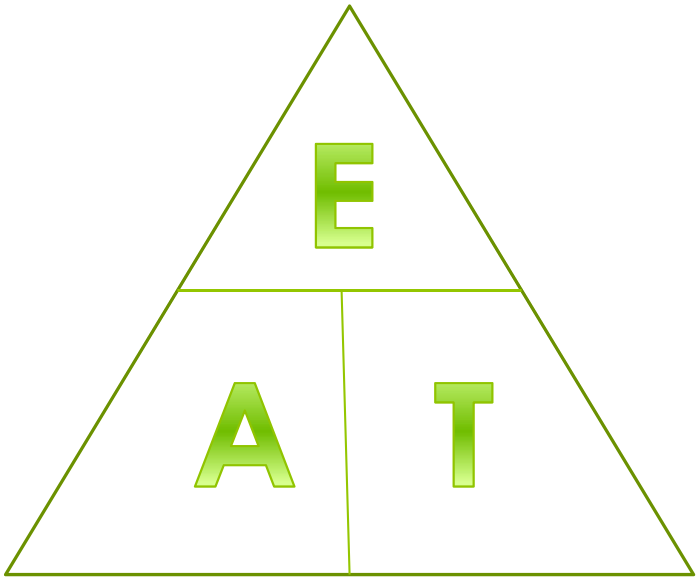
Assessed Value

- A value set on real and personal property as a basis for levying taxes
- Entered officially on the Assessment Roll for the purposes of the tax levy
- Assessment Rate in Nevada = 35% of taxable value

Effective Tax Rate Formula

- The ratio between the current tax bill and the property value

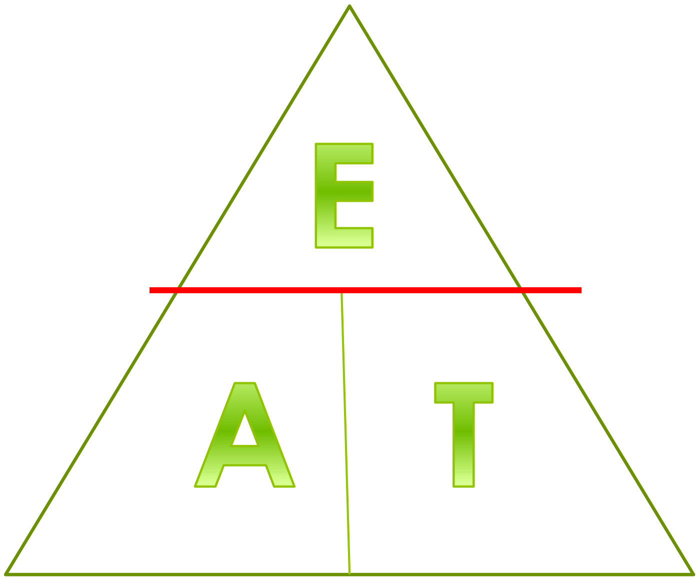
  - **E = Effective Tax Rate**
  - **A = Assessment Ratio**
  - **T = Tax Rate**



Effective Tax Rate Formula

- The ratio between the current tax bill and the property value
  - E = Effective Tax Rate
  - A = Assessment Ratio
  - T = Tax Rate

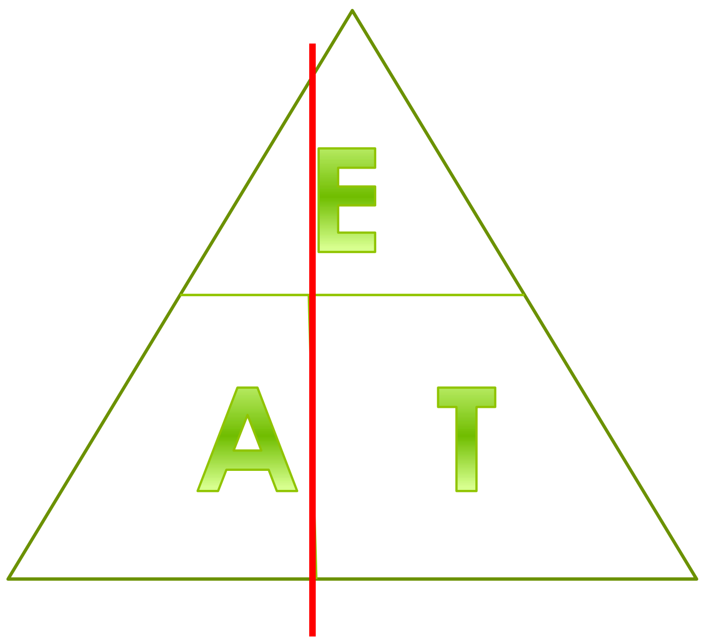
  - **Formula: E = A * T**



Assessment Ratio Formula

- The ratio between the current tax bill and the property value
  - E = Effective Tax Rate
  - A = Assessment Ratio
  - T = Tax Rate

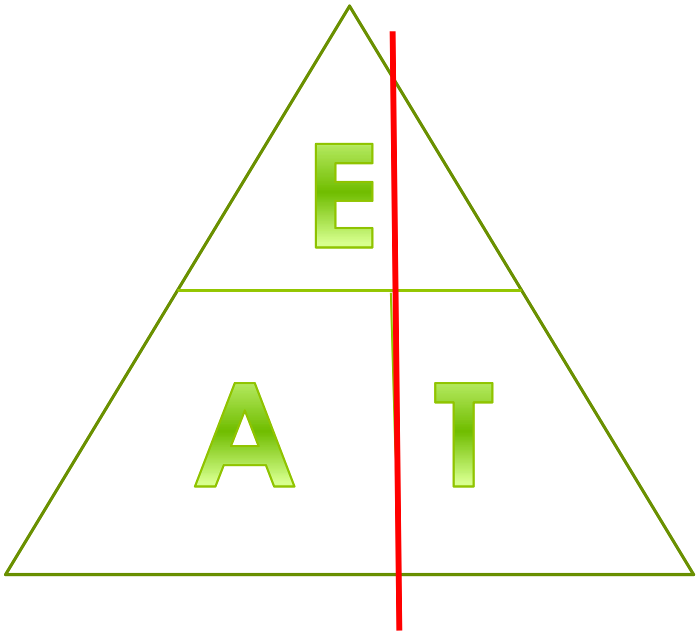
  - **Formula: A = E/T**



Tax Rate Formula

- The ratio between the current tax bill and the property value
  - E = Effective Tax Rate
  - A = Assessment Ratio
  - T = Tax Rate

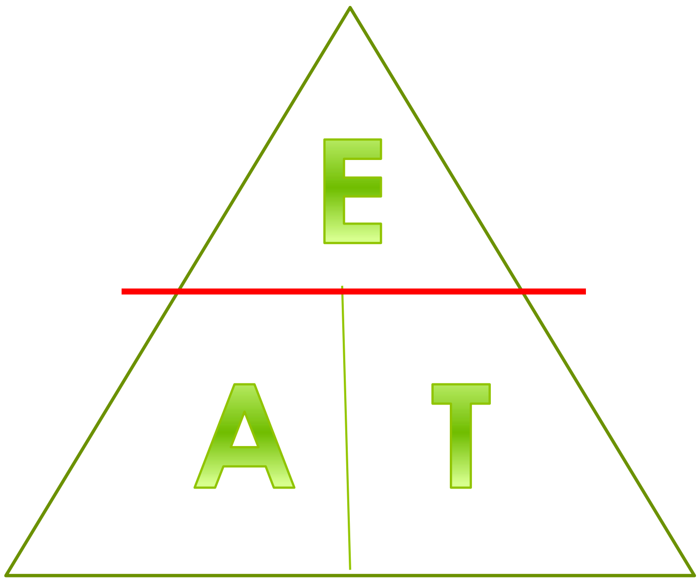
    - **Formula: T = E/A**



Calculate Effective Tax Rate

Determine the effective tax rate for a jurisdiction with a nominal tax rate of $3.42 per $100 of assessed value and a 35% assessment ratio.

Step 1: Formula: E = A * T



Calculate Effective Tax Rate

Step 2:

Convert Assessment Ratio and the Tax Rate to decimals:

A = 35% or .35 (assessment ratio)

T = $3.42 / $100 = .0342 (nominal tax rate)

Calculate Effective Tax Rate

Step 3:

Do the calculation

E = A * T

E = .35 (A) * .0342 (T) = .01197 (E)or 1.197%

Math Problem #2

Calculate Assessment Level

Find the assessment level if the Effective Tax Rate (E) = 2.5% and the Tax Rate (T) = $5.00 per $100 of assessed value

A = E / T

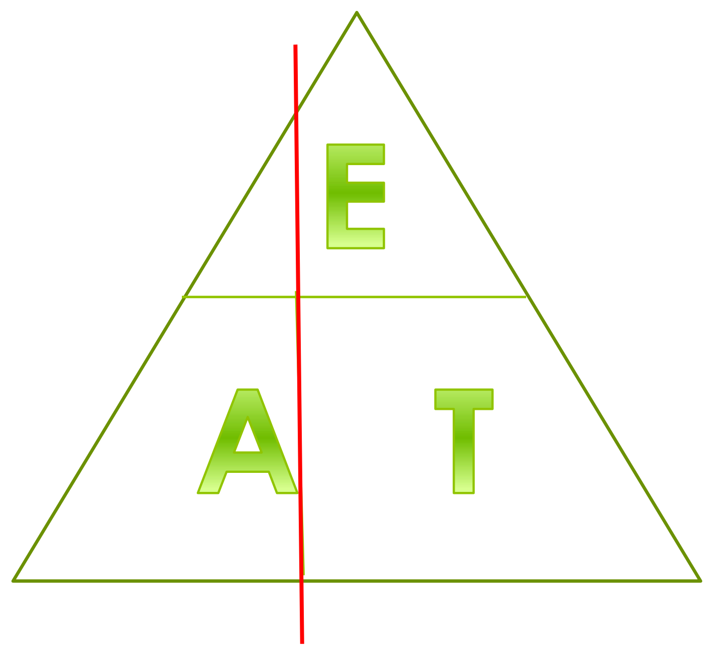
E = 2.5 or .025

T = 5.00 / 100 or .05

A = .025 / .05

A = .50 or 50%

Math Problem #1



Lien Date for Taxes

- July 1 (NRS 361.450) of the year for which the taxes are levied

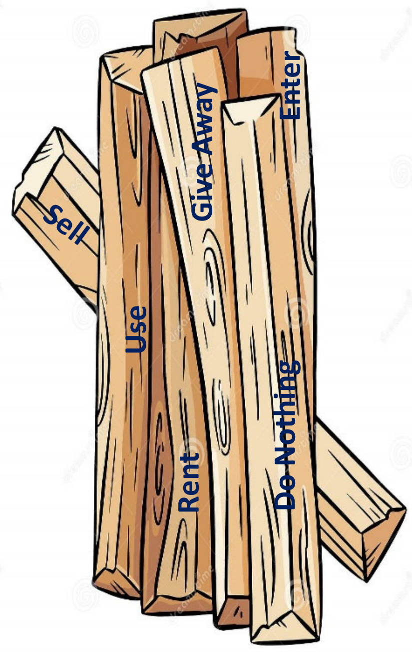
Fiscal Year

- July 1 to June 30 (NRS 361.020)

Fee Simple

Absolute ownership unencumbered by any other interest or estate OR the ownership of all legal rights

- Six basic rights (or a bundle of sticks) associated with property (Remember Using **S.U.R.G.E.D.**):
  - **S**ell
  - **U**se
  - **R**ent
  - **G**ive Away
  - **E**nter
  - **D**o Nothing



Government Powers that Restrict the Bundle of Rights

Limits the full exercise of the property rights (**P.E.T.E.**):

Police Power – right of the government to enact and enforce laws for the benefit of the public (zoning, building codes, environmental protection, etc.)

Eminent Domain – the right of the government to take over privately owned real estate for public use with just compensation (highways, major pipelines, railroads, etc.)

Taxation – ad valorem taxes

Escheat – property that reverts to the State when someone dies without a will or heirs

Nevada Tax Commission

- Head of the Department of Taxation
- 8 members appointed by the Governor (NRS 360.010)
- Certifies:
  - Tax Rates
  - Ag Bulletin/Land Classifications
  - Improvement Factors
  - Rural Building Costs Manual
  - Personal Property Manual
- Sets rates and values

Nevada Tax Commission

- Establishes values for Centrally Assessed (Department of Taxation) properties:
  - Use Income and cost approaches
  - Valuations certified by NTC in October of each year
  - Interstate or inter-county nature
    - Railroads, private carline companies
    - Natural gas and water line companies
    - Telecom companies
    - Electric light and power companies
    - Airline companies
    - Some geothermal companies

Department of Taxation

- NRS 360.120 – created Department
- Does studies and develops manuals
- Publishes
  - Agricultural Manual
  - Golf Course Tables
  - Land Use Codes Manual
  - Personal Property Manual
- Develops
  - Improvement Factors
  - Tax Caps
  - Ratio Studies
- All are approved by NTC

Nevada
Department of Taxation

Appraiser Certification

- NRS 361.221 – A person shall not perform the duties of an appraiser for purposes of taxation unless the person holds a valid appraiser's certificate issued by the Department.
- NRS 361.222 – A Temporary Certificate can be issued by the Department

- Expires after 2 years or until the certification exam is passed, whichever occurs first
- Cannot be renewed

Continuing Education

- NRS 361.223 –
  - New appraisers must complete **180 hours** of approved/accepted education **within the first 5 years** (Milestone 1). This is equal to 36 hours of continuing education per year.
  - Every certified appraiser must complete **36 hours** of continuing education in a **3-year period**. The excess will NOT carry over into the next milestone (3-year period).
  - At least 4 hours must be earned in ethics and professional standards training.

Ratio Study

- NRS 361.333 – No later than May 1st of each year, the Department shall compare the assessed value to taxable value within a county and develop a ratio.
- An acceptable ratio range is 32% to 36%
- The counties are required by law to be assessed at 35%
  - The Ratio Study addresses:
    - Assessment levels
    - Assessment ratios
    - Assessment practices
- NAC 361.580 – allows the Department to establish and divide classes of property for the Ratio Study

Improvement Factors

- Developed by the Department of Taxation
- Approved by the County Assessor
- Adopted by the NTC
- NRS 361.260(5) – the Assessor may apply an improvement factor in non-reappraisal areas or they can determine the RCNLD for all improvements every year.
- The Department calculates the improvement factor based on the change in costs reported by the Marshall and Swift Costing Service from the previous year.

Recorded Documents and the Range of Market Value

- Market price is the price of a commodity when sold on the market
- Market value is the amount that something can be sold on the market; it is what an informed seller will accept and an informed buyer is willing to pay; the most probable price
- High Reliability - Arm's Length Transactions – informed buyer and seller with no relationship
  - Grant Bargain Sale Deed – conveyance of real property
- Low Reliability –
  - Transfer of property between relatives
    - Quitclaim Deed – usually not an arm's length transaction
      - Divorce
      - Transfer to family member
  - Bankruptcy or Liquidation Sale of an inheritance – selling property quickly
    - Trustees Deed – a third-party trustee holds title to the property until the loan is paid

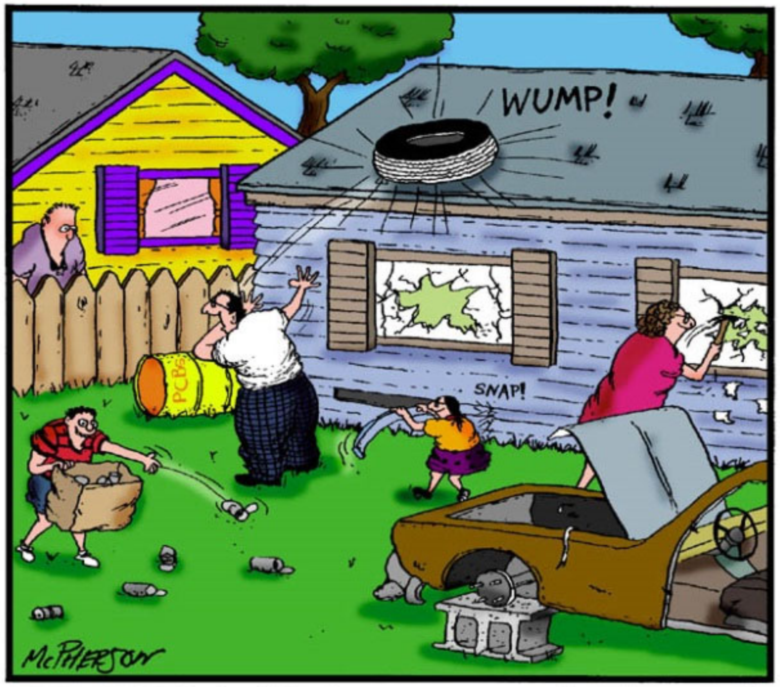
Market Value Ranges

- Asking Price – establishes the higher end of value

- Offering Price – establishes the lower end of value

Functions of the Assessor

- **Discover** – find property that is not on the tax roll but should be
- **List** – to place all property on the tax roll
- **Value** – to develop a fair and equitable valuation (worth)
- NRS 361.260 – Assessor must reappraise all real property once every **5** years
- Value Estimate is always subject to review



"Relax! This is just until the tax assessor comes here tomorrow."

Assessor's Liability:

- NRS 361.525 – Assessor who issues a receipt for payment made for taxes on movable property other than on the blank receipts provided by the county commission can be:
  - Guilty of a felony
  - Subject to removal from office
  - Subject to 1-4 years in jail
  - Subject to a fine of not more than $5,000

Assessor's Liability:

- NRS 361.300 – Assessor who fails to complete the assessment roll on time, shall not be allowed to collect compensation for any day after January 1 during which the roll is not completed.

Tax Rolls

- NRS 361.260 – the unsecured tax roll closes on April 30th.

NRS 361.310 - the secured tax roll closes on or before January 1st.

Tax Rolls

- NRS 361.300 – A notice that the Secured Tax Roll is complete and open for inspection must be posted at the front door of the courthouse, transmitted to the County Clerk and be published in a newspaper or published on an internet website that is maintained by the County or the County Assessor on or before January 1st.

Tax Rolls

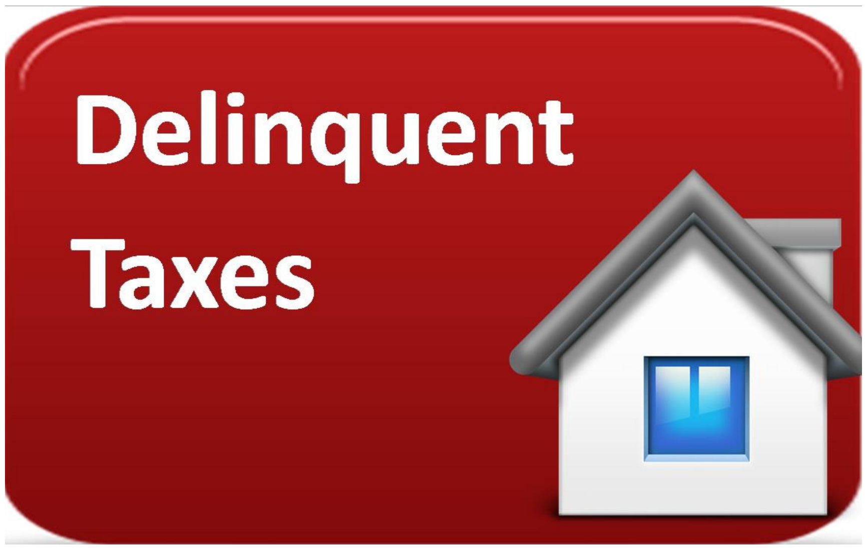
- Assessor must keep a log of changes to the secured roll that occur prior to July 1 and transmit it to the county commission and NTC on or before October 31st.

Changes can be made to:

- ownership,
- new construction,
- destruction or removal of improvements,
- land parceling,
- site improvements,
- zoning or other legal or physical restrictions,
- actual use,
- exemptions or items of personal property on the secured roll.

Tax Bill

- NRS 361.535 – personal property taxes become delinquent if they are not paid within 30 days after demand.



Tax Bill

- NRS 361.535 – A penalty of 10% may be assessed if the personal property tax bill isn't paid within 10 days after becoming delinquent.

Tax Rolls & Penalties

- NRS 361.767 – If personal property is incorrectly reported or not reported, a 20% penalty can be added at any time within 3 years after the end of the fiscal year.

Determination of Taxable Value Personal Property (NRS 361.227(4))

- Acquisition cost to the current owner (RCN) less depreciation and obsolescence (RCNLD)
- Except mobile or manufactured homes which is the retail selling price to the original owner less depreciation
- Depreciation on Personal Property as set forth in the Personal Property Manual

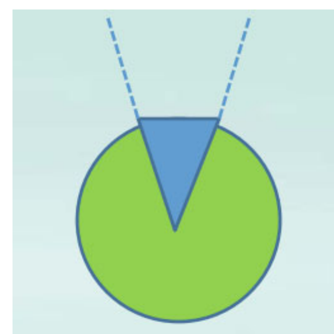
Determination of Taxable Value Real Property(NRS 361.227)

- Determine if it is real property:
  - Location,
  - Zoning,
  - Actual Use,
  - Intended Use,
  - Attachment to Land

- Determination of Taxable Value
  - Full Cash Value of Land +
  - RCNLD of improvements

Full Cash Value of Land

- Full Cash Value (NRS 361.025)
  - Most probable price which property would bring in a competitive and open market under all conditions requisite to a fair sale.
    - Land - NAC 361.1141 – The surface of the earth, with the air space above and everything below to the apex at the center of the earth, along with any natural resource and any rights attached to the land.
    - Valued by considering:
      - The lawful use,
      - Legal or physical restrictions,
      - Character of terrain,
      - Uses of other land in the vicinity.



Improved Land & Improvements

- Improved Land –

  - NAC 361.113 – Land on which there are improvements sufficient to identify the current actual use.
    - Valued consistent with the use to which the improvements are being put

      - Improvements
        - RCNLD of Improvements
          - Depreciation on Real Property – 1.5% per year of age up to 50 years

1.5%

Inequitable Taxation

- The total amount of taxes to be paid is determined by:

  total budget / total assessed value

- This amount is then prorated among all taxpayers.
- If property is not discovered or listed, it cannot be taxed and therefore the total tax bill is prorated among a smaller number of taxpayers causing each to pay more than their share.
- Uniform and equitable assessments are mandated by law.

Appeals

- A process in which a taxpayer contests an assessment
- Can involve:
  - County Board of Equalization
  - State Board of Equalization
  - District court, culminating in the State Supreme Court

Appeals – Locally Assessed (County Assessor)

- Phases of appeal
  - County Board of Equalization
    - Must be filed by January 15 (NRS 361.356)
  - State Board of Equalization
    - If the taxpayer is aggrieved by the action of the CBE
      - Must be filed by March 10 (NRS 361.360)
    - Property placed on unsecured tax roll after December 15 but before April 30 of the following year
      - Must be filed by May 15 (NRS 361.360)
    - NRS 361.357 instructs the board to review the full cash value of the property as of January 1st immediately preceding the fiscal year for which the taxes are levied.
  - District Court
  - Nevada Supreme Court

Appeals – Centrally Assessed (Department of Taxation)

- Phases of Appeal
  - State Board of Equalization
    - NRS 361.375 – consists of 5 members appointed by the Governor.
    - Direct appeals – property appraised and assessed by the Department (interstate and inter-county; mining property; net proceeds of minerals)
      - NRS 361.402 – must be filed by January 15th
  - District Court
  - Nevada Supreme Court

Personal Property

- NRS 361.030 – personal property is every kind of property that is NOT real property
  - Movable without damage to itself or the real estate
  - All furniture; law, medical and miscellaneous libraries; goods, wares and merchandise; chattels of every kind and description; goods on hand; unlicensed vehicles; machines and machinery; money, property and effect of every kind, except real estate
  - Tangible and intangible (bundle of rights)

Definitions

- Accrued Depreciation – loss of the upper limit of value.
- Acquisition Cost – actual cost of property to its present owner including transportation and installation but not sales tax.
  - Example: If an asset was built in 1999 but acquired in 2005, depreciation starts in 2005
- Bona fide resident – A person who has established a residence in Nevada, has resided in the state for at least six months and has a valid driver's license or ID card issued by DMV (NRS 361.015).

Definitions (continued)

- Percent Good = (1 - the amount of depreciation)
  - Example: An item that is 40% depreciated is 60% good or 1.0 - .4 = .6 or 60%

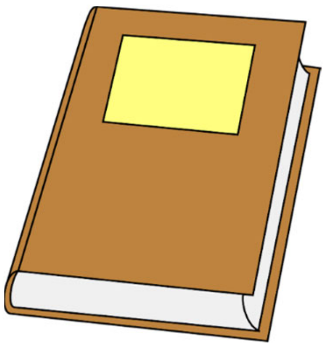
- Straight-line depreciation is the most commonly-used method. It distributes the cost of the asset equally over all of its estimated life.

Accounting Terms

- Depreciation – the difference between an asset's original cost and its current book value
- Declining Balance – Applies a constant depreciation rate to the prior year's ending book value.

Personal Property Manual

- Published by the Department pursuant to NAC 361.1365
- Rate set and approved by NTC
- Contains Expected Life Schedules and Depreciation Schedules
  - Reflects the estimated life of property
- The cost-index factors must be determined by calculating the average change in costs over time



Personal Property Expected Life Tables

NEVADA DEPARTMENT OF TAXATION

SEVEN (7) YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2019	0	1.00	0.0	100.0	1.0000
2018	1	1.01	29.0	71.0	0.7171
2017	2	1.02	49.0	51.0	0.5202
2016	3	1.03	64.0	36.0	0.3708
2015	4	1.04	74.0	26.0	0.2704
2014	5	1.05	81.0	19.0	0.1995
2013	6	1.06	88.0	12.0	0.1272
2012	7	1.08	95.0	5.0	0.0540
Residual		1.08	95.0	5.0	0.0540

Conversion Factor = Cost Index * Percent Good

Personal Property Procedure(NAC 361.1371)

Adjust acquisition cost by a cost-index factor

Adjusted acquisition cost reduced by an estimate of applicable depreciation

Application:

- Select the appropriate expected useful life
- Select the appropriate cost-index factor
- Determine the depreciation
  - Multiply:
    - Adjusted Acquisition Cost
    - Rate of Depreciation
- Subtract:
  - Adjusted Acquisition Cost
  - Depreciation

Personal Property Formula

- Acquisition Cost * Cost Index = Replacement Cost New (RCN)
- RCN * (1-% Good) = Taxable Value (RCNLD)
- RCNLD * 35% = Assessed Value
- Assessed Value * Tax Rate = Taxes Due (NAC 361.1371)

Personal Property Calculation

An owner installed dairy barn equipment 8 years ago. At the time, the equipment had an economic life of 10 years. It cost $11,000 plus $1,000 for installation and $1,000 for transportation. Use this information:

- Cost index equals 1.11
- Percent good is 16%
- Assessment ratio is 35%
- Tax rate is $3.25 per $100 of assessed value

What is the replacement cost new, taxable value, assessed value, and tax bill?

Calculate Replacement Cost New (RCN)

Apply the cost index factor to the acquisition cost to bring it to today's cost. "It cost $11,000 plus $1,000 for installation and $1,000 for transportation."

Formula:

Acquisition Cost * Index Factor = Replacement Cost New

Acquisition Cost:

$11,000 (cost)+ $2,000 (installation & transportation) = $13,000

$13,000 (RCN) * 1.11 (factor) = $14,430 RCN

Math problems #3 & #4

Calculate Depreciation

$11,000+$2,000 = $13,000 (Acquisition Cost)

$13,000 * 1.11(factor) = $14,430 (RCN)

Formula: RCN * (1-% Good) = Depreciation

$14,430 * (1-16%) or

$14,430 * 84% = $12,121.20 depreciation

Math Problem #5

Calculate Taxable Value or RCNLD

$11,000+$2,000 = $13,000 (Acquisition Cost)
$13,000 * 1.11(factor) = $14,430 (RCN)
$14,430 * (1-16%) or 84% = $12,121.20 (Depreciation)

Formula: RCN – Depreciation = Taxable Value

$14,430 - $12,121.20 = $2,308.80 (RCNLD or Taxable Value)

Math problem #6

Calculate Assessed Value

$11,000+$2,000 = $13,000 (Acquisition Cost)

$13,000 * 1.11(factor) = $14,430 (RCN)

$14,430 * (1-16%) or 84% = $12,121.20 (Depreciation)

$14,430 - $12,121.20 = $2,308.80 (RCNLD)

Formula: RCNLD * Assessment Rate = Assessed Value

$2,308.80 * .35 = $808.08 (Assessed Value)

Math problem #7

Calculate Taxes Due

$11,000+$2,000 = $13,000 (Acquisition Cost)

$13,000 * 1.11(factor) = $14,430 (RCN)

$14,430 * (1-16%) or 84% = $12,121.20 (Depreciation)

$14,430 - $12,121.20 = $2,308.80 (RCNLD)

$2,308.80 * .35 = $808.08 (Assessed Value)

Formula: Assessed Value * Tax Rate = Taxes Due

- **$3.25 / $100 = .0325**

$808.08 * .0325 = $26.26 (Taxes Due)

Math problem #8

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. Determine the RCN, Depreciation, RCNLD, Assessed Value and Taxes Due.

31 MANUFACTURING

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

311 Food 15

Personal property used in this industry transform livestock and agricultural products into products for intermediate or final consumption. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included. Includes equipment such as walk-in coolers, freezers and other refrigeration, grain tanks, bottling and canning equipment in the following industries:

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. Determine the RCN.

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2021	0	1.00	0.0	100.0	1.0000
2020	1	1.00	13.0	87.0	0.8700
2019	2	1.03	25.0	75.0	0.7725
2018	3	1.06	35.0	65.0	0.6890
2017	4	[illegible]	44.0	56.0	0.6048
2016	5	[illegible]	51.0	49.0	0.5390
2015	6	[illegible]	58.0	42.0	0.4662
2014	7	[illegible]	63.0	37.0	0.4144
2013	8	1.13	68.0	32.0	0.3616
2012	9	1.15	72.0	28.0	0.3220
2011	10	1.18	76.0	24.0	0.2832
2010	11	1.20	80.0	20.0	0.2400
2009	12	1.21	84.0	16.0	0.1936
2008	13	1.24	87.0	13.0	0.1612
2007	14	1.28	91.0	9.0	0.1152
2006	15	1.32	95.0	5.0	0.0660
Residual		1.32	95.0	5.0	0.0660

RCN = Acquisition Cost * Cost Index Factor

-OR-

RCN = $11,000 * 1.06 = $11,660

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. RCN = $11,660. What is the depreciation?

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2021	0	1.00	0.0	100.0	1.0000
2020	1	1.00	13.0	87.0	0.8700
2019	2	1.03	25.0	75.0	0.7725
2018	3	1.06	35.0	65.0	0.6890
2017	4	1.08	44.0	[illegible]	0.6048
2016	5	1.10	51.0	[illegible]	0.5390
2015	6	1.11	58.0	[illegible]	0.4662
2014	7	1.12	63.0	[illegible]	0.4144
2013	8	1.13	68.0	32.0	0.3616
2012	9	1.15	72.0	28.0	0.3220
2011	10	1.18	76.0	24.0	0.2832
2010	11	1.20	80.0	20.0	0.2400
2009	12	1.21	84.0	16.0	0.1936
2008	13	1.24	87.0	13.0	0.1612
2007	14	1.28	91.0	9.0	0.1152
2006	15	1.32	95.0	5.0	0.0660
Residual		1.32	95.0	5.0	0.0660

Depreciation = RCN * (1-% Good)

-OR-

Depreciation = $11,660 * (1-65%) = $4,081

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. RCN = $11,660; Depreciation = $4,081 – what is the RCNLD?

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2021	0	1.00	0.0	100.0	1.0000
2020	1	1.00	13.0	87.0	0.8700
2019	2	1.03	25.0	75.0	0.7725
2018	3	1.06	35.0	65.0	0.6890
2017	4	1.08	44.0	56.0	0.6048
2016	5	1.10	51.0	49.0	0.5390
2015	6	1.11	58.0	42.0	0.4662
2014	7	1.12	63.0	37.0	0.4144
2013	8	1.13	68.0	32.0	0.3616
2012	9	1.15	72.0	28.0	0.3220
2011	10	1.18	76.0	24.0	0.2832
2010	11	1.20	80.0	20.0	0.2400
2009	12	1.21	84.0	16.0	0.1936
2008	13	1.24	87.0	13.0	0.1612
2007	14	1.28	91.0	9.0	0.1152
2006	15	1.32	95.0	5.0	0.0660
Residual		1.32	95.0	5.0	0.0660

RCNLD = RCN – Depreciation

-OR-

RCNLD = $11,660 - $4,081 = $7,579

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. RCN = $11,660; Depreciation = $4,081; RCNLD = $7,579 – what is the Assessed Value?

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2021	0	1.00	0.0	100.0	1.0000
2020	1	1.00	13.0	87.0	0.8700
2019	2	1.03	25.0	75.0	0.7725
2018	3	1.06	35.0	65.0	0.6890
2017	4	1.08	44.0	56.0	0.6048
2016	5	1.10	51.0	49.0	0.5390
2015	6	1.11	58.0	42.0	0.4662
2014	7	1.12	63.0	37.0	0.4144
2013	8	1.13	68.0	32.0	0.3616
2012	9	1.15	72.0	28.0	0.3220
2011	10	1.18	76.0	24.0	0.2832
2010	11	1.20	80.0	20.0	0.2400
2009	12	1.21	84.0	16.0	0.1936
2008	13	1.24	87.0	13.0	0.1612
2007	14	1.28	91.0	9.0	0.1152
2006	15	1.32	95.0	5.0	0.0660
Residual		1.32	95.0	5.0	0.0660

Assessed Value = RCNLD * Assessment Rate

-OR-

Assessed Value = $7,579 * 35% = $2,652.65

Calculate Using Life Tables

The Busy Bee Bakery purchased bakery equipment in 2018. The acquisition cost was $11,000 and the tax rate is $3.66 per $100. RCN = $11,660; Depreciation = $4,081; RCNLD = $7,579 – what is the Assessed Value?

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2021	0	1.00	0.0	100.0	1.0000
2020	1	1.00	13.0	87.0	0.8700
2019	2	1.03	25.0	75.0	0.7725
2018	3	1.06	35.0	65.0	0.6890
2017	4	1.08	44.0	56.0	0.6048
2016	5	1.10	51.0	49.0	0.5390
2015	6	1.11	58.0	42.0	0.4662
2014	7	1.12	63.0	37.0	0.4144
2013	8	1.13	68.0	32.0	0.3616
2012	9	1.15	72.0	28.0	0.3220
2011	10	1.18	76.0	24.0	0.2832
2010	11	1.20	80.0	20.0	0.2400
2009	12	1.21	84.0	16.0	0.1936
2008	13	1.24	87.0	13.0	0.1612
2007	14	1.28	91.0	9.0	0.1152
2006	15	1.32	95.0	5.0	0.0660
Residual		1.32	95.0	5.0	0.0660

Taxes Due = Assessed Value * Tax Rate

Tax Rate = $3.66/$100 or .0366

-OR-

Assessed Value = $2,652.65 * .0366 = $97.09

Math problems #3,#4,#5,#6,#7,#8

Mobile Homes

- Personal Property
- Stickers may be issued by the county assessor (NRS 361.5643) for taxes paid.

Mobile Homes

- NAC 361.130 - Taxable value for mobile homes is determined as follows:
  - Sold on or before July 1, 1982 – **Retail selling price to the original owner** less depreciation at 5% per year to a maximum depreciated value of 20%
  - Sold on or after July 1, 1982 – Replacement cost (when new) less depreciation or **the retail selling price to the original owner** adjusted by factors reflected in the Personal Property Manual to a maximum depreciated value of 20%.
  - Includes installation, transportation and accessories (NAC 361.130)

Mobile Homes

- If a mobile home that is personal property is seized for non-payment of taxes, the county assessor shall:
  - publish a notice during each of 2 successive weeks in a newspaper of general circulation
  - send notification by registered or certified mail to the legal owner
  - sell the property at public auction after 5 days from the date of the second publication (NRS 361.535).

Personal Property Mobile Home Example

Calculate the replacement cost new, depreciation, taxable value, assessed value and taxes due on a mobile home that sold In 1998 for $30,000. The tax rate is $4.00 per $100 assessed and the assessment ratio is 35%.

(Step-by-Step calculations occur on the next 4 slides)

Mobile Home - RCN

Formula:

Original Cost * Cost Index Factor = RCN

$30,000 * 1.18 = $35,400

Math Problem #9

NEVADA DEPARTMENT OF TAXATION
2006-2007 COST CONVERSION FACTORS
MOBILE HOMES SOLD ON OR AFTER JULY 1, 1982
16-YEAR STRAIGHT LINE

Year First Sold	Age	Cost Index	Percent Depreciation	Percent Good
2006	0	1.00	0.0	100.0
2005	1	1.00	5.0	95.0
2004	2	1.00	10.0	90.0
2003	3	1.08	15.0	85.0
2002	4	1.11	20.0	80.0
2001	5	1.16	25.0	75.0
2000	6	1.17	30.0	70.0
1999	7	1.18	35.0	65.0
1998	8	1.18	40.0	60.0
1997	9	1.19	45.0	55.0
1996	10	[illegible]	50.0	50.0

Mobile Home – Depreciation

$30,000 * 1.18 =
$35,400 (RCN)

Formula:

Depreciation = RCN * (1- Percent Good)

$35,400* (1-.60) or
$35,400 * .40 =
$14,160

Math problem #10

NEVADA DEPARTMENT OF TAXATION
2006-2007 COST CONVERSION FACTORS
MOBILE HOMES SOLD ON OR AFTER JULY 1, 1982
16-YEAR STRAIGHT LINE

Year First Sold	Age	Cost Index	Percent Depreciation	Percent Good
2006	0	1.00	0.0	100.0
2005	1	1.00	5.0	95.0
2004	2	1.00	10.0	90.0
2003	3	1.08	15.0	85.0
2002	4	1.11	20.0	80.0
2001	5	1.16	25.0	75.0
2000	6	1.17	30.0	70.0
1999	7	1.18	35.0	65.0
1998	8	1.18	40.0	60.0
[illegible]	9	1.19	[illegible]	55.0
1996	10	1.20	[illegible]	50.0

Mobile Home – RCNLD or Taxable Value

$30,000 * 1.18 = $35,400 (RCN)
$35,400* (1-.60) or .40 = $14,160 (Depreciation)

Formula:

RCNLD = RCN – Depreciation

$35,400 - $14,160 = $21,240

Math problem #11

NEVADA DEPARTMENT OF TAXATION
2006-2007 COST CONVERSION FACTORS
MOBILE HOMES SOLD ON OR AFTER JULY 1, 1982
16-YEAR STRAIGHT LINE

Year First Sold	Age	Cost Index	Percent Depreciation	Percent Good
2006	0	1.00	0.0	100.0
2005	1	1.00	5.0	95.0
2004	2	1.00	10.0	90.0
2003	3	1.08	15.0	85.0
2002	4	1.11	20.0	80.0
2001	5	1.16	25.0	75.0
2000	6	1.17	30.0	70.0
1999	7	1.18	35.0	65.0
1998	8	1.18	40.0	60.0
1997	9	1.19	45.0	55.0
1996	10	1.20	50.0	50.0

Mobile Home – Calculate Assessed Value

$30,000 * 1.18 = $35,400 (RCN)

$35,400* (1-.60) or .40 = $14,160 (Depreciation)

$35,400 - $14,160 = $21,240 (RCNLD)

Formula:

Taxable Value * Assessment Ratio = Assessed Value

$21,240 * 35% = $7,434

Math problem #12

Mobile Home – Calculate Taxes Due

$30,000 * 1.18 = $35,400 (RCN)

$35,400* (1-.60) or .40 = $14,160 (Depreciation)

$35,400 - $14,160 = $21,240 (RCNLD)

$21,240 * 35% = $7,434 (Assessed Value)

Formula:

Assessed Value * Tax Rate = Taxes Due

$4.00 / $100 = .04

$7,434 * .04 = $297.36

Math problem #13

Mobile Home Conversion

- NAC 361.130 – taxable value is the cost of replacement less depreciation and obsolescence.
- NRS 361.2445 – requires an affidavit of conversion to be filed with the county recorder's office.

Mobile Home Conversion

- Placed on the secured tax roll when:
  - Manufactured Housing verifies it is converted
  - The owner brings the recorded affidavit to the Assessor's Office
  - The Assessor's office verifies the Unsecured Taxes are paid in full.

  - Manufactured Housing destroys the MH Title and notifies the Assessor's Office the conversion is complete.

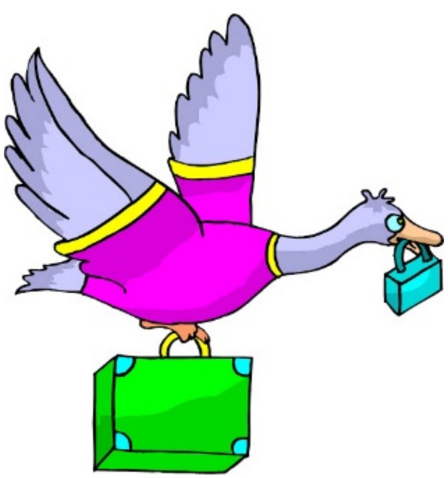
  - The Assessor's Office adds the Mobile Home Conversion to the Secured Tax Roll as real property

Free-Port – Personal Property in Transit

- NRS 361.160 – Personal property in transit through the state
  - Moving in interstate commerce
  - Consigned to a warehouse from outside the state for storage in transit to a final destination outside Nevada
  - Deemed to have "no situs" in Nevada for purposes of taxation

Migratory Personal Property

- NRS 361.505 and NRS 361.5607 - "migratory property" means any movable personal property which the county assessor expects **will not remain in the county for a full fiscal year.**
- Shall be placed on the **unsecured tax roll**.



Migratory Personal Property

- The county assessor shall **prorate the tax** on migratory property brought into or entering the State or county for the first time during the fiscal year **by reducing the tax one-twelfth for each full month which has elapsed since the beginning of the fiscal year**

$$\frac{1}{12}$$

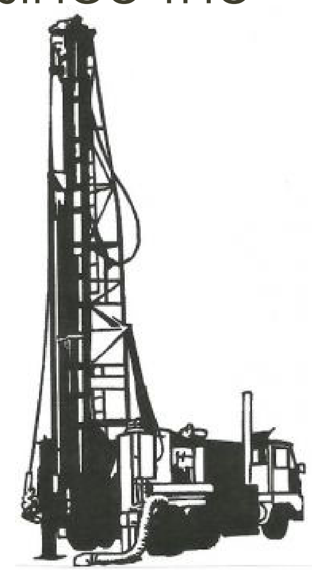
Formula: # of months since July * 1/12

Migratory Property - Example

The assessor discovers well drilling equipment moved into the county on December 1st. It is movable personal property and it will not remain in the county for a full fiscal year. What fractional reduction is applied to prorate the taxes?

Calculate Fractional Reduction (time elapsed since the beginning of the fiscal year):

July-August,
August-September,
September-October,
October-November,
November-December
= 5 months



Fractional Reduction = # of months * 1/12 = 5/12

Migratory Property Practice

Migratory property has entered the county on September 1st and will not remain for a full year. The taxable value is $20,000. The assessment rate is 35%. Compute the taxes due using a tax rate of $3.00 per $100 assessed value.

- Calculate the fractional reduction
  - July-August, August-September = 2 months * 1/12 = 2/12
- Calculate the fractional reduction amount
  - $20,000 * 2/12 = $3,333.33
- Deduct the fractional reduction from the taxable value
  - $20,000 - $3,333.33 = $16,666.67
- Calculate the Assessed Value
  - $16,666.67 * 35% = $5,833.33
- Tax Rate to Decimal:
  - $3.00 / $100 = .03
- Calculate the taxes due
  - $5,833.33 * .03 = $174.99

Math problem #14

Possessory Interest

- NAC 361.352 – Possessory interest means a type of ownership or partial ownership of the total fee simple rights (bundle of rights)

Frequently encountered when government property is rented or leased to a taxable occupant or property is leased to a company at a public airport

Possessory Interest

- NRS 361.159 – When personal property, which for any reason is exempt from taxation, is leased and used in business conducted for profit, the possessory interest of the leasehold is subject to taxation – it is not exempt.

Fine Art for Display

- NRS 361.068(4)(b) – means a work of art which is:
  - An original oil, mineral, water color, vitreous enamel or pastel painting
  - An original mosaic, drawing or sketch
  - An original sculpture of clay, textiles, fiber, wood, metal, plastic or glass
  - An original work of mixed media
  - A lithograph
- Was purchased in an arm's length transaction for $25,000 or has an appraised value of more than $25,000
- On public display

Fine Art for Display

- It does not include a work of fine art that is:
  - a fixture or an improvement to real property
  - is a copy of an original
  - are products of filmmaking or photography, motion pictures, literary works
  - or property used in the performing arts

Billboards

- Means a sign that directs attention to a business, commodity, service, entertainment or attraction that is sold, offered or exists at a location other than the premises on which the sign is located (NRS 361.013).

Billboards

- NAC 361.1305 – taxable value is the cost of replacement less depreciation and obsolescence (Personal Property Manual).

NEVADA DEPARTMENT OF TAXATION

BILLBOARDS

50 YEAR STRAIGHT LINE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2022	0	1.00	0.0	100.0	1.0000
2021	1	1.00	1.5	98.5	0.9850
2020	2	1.04	3.0	97.0	1.0088
2019	3	1.05	4.5	95.5	1.0028
2018	4	1.07	6.0	94.0	1.0058
2017	5	1.11	7.5	92.5	1.0268
2016	6	1.13	9.0	91.0	1.0283
2015	7	1.14	10.5	89.5	1.0203
2014	8	1.15	12.0	88.0	1.0120
2013	9	1.17	13.5	86.5	1.0121
2012	10	1.20	15.0	85.0	1.0200
2011	11	1.23	16.5	83.5	1.0271

Billboards

- NRS 361.227(4) – taxable value must be calculated at 1.5% of the cost of replacement for each year after acquisition up to a maximum of 50 years.

1.5%

X RCN


TIME FOR A
Break

Real Property vs. Real Estate

- **Real Property** – the sum of tangible and intangible qualities of land and improvements including the rights of ownership.
- **Real Estate** – the physical parcel of land and its improvements (houses, buildings, fences, ditches, structures, erections, railroads, toll roads and bridges or other improvements built or erected upon any land (NRS 361.035)).
- The Treasurer collects the taxes for real property (NRS 361.475).

Exemptions

- Property **owned by schools, city, county, state or federal government or land where payment in lieu of taxes (PILT) is received** (NRS 361.055, NRS 361.060, NRS 361.065, NRS 361.096, NRS 361.099, NRS 361.100, NRS 361.105)

Exemptions

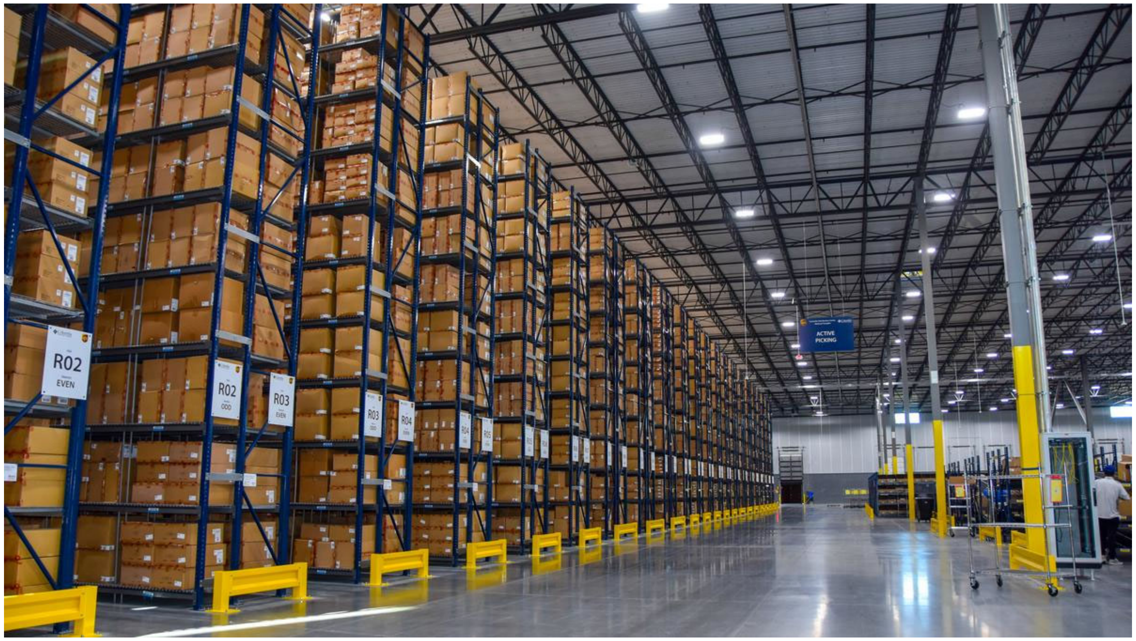
- **Privately owned parks and airports used by the public** (NRS 361.0605 & NRS 361.061)

Exemptions

- **Vehicles licensed through DMV** (NRS 361.067).

Exemptions

- **Personal property held for sale by merchant or manufacturer** (NRS 361.068)



Exemptions

- **Irrigation pipe, drainage ditches, business inventories, livestock, bee colonies, boats and slide-in campers** (NRS 361.068, NRS 361.070)






Exemptions

- **Fine art for public display** (NRS 361.068)

Exemptions

- **Household goods and furniture** (except rental property) (NRS 361.069)

Exemptions

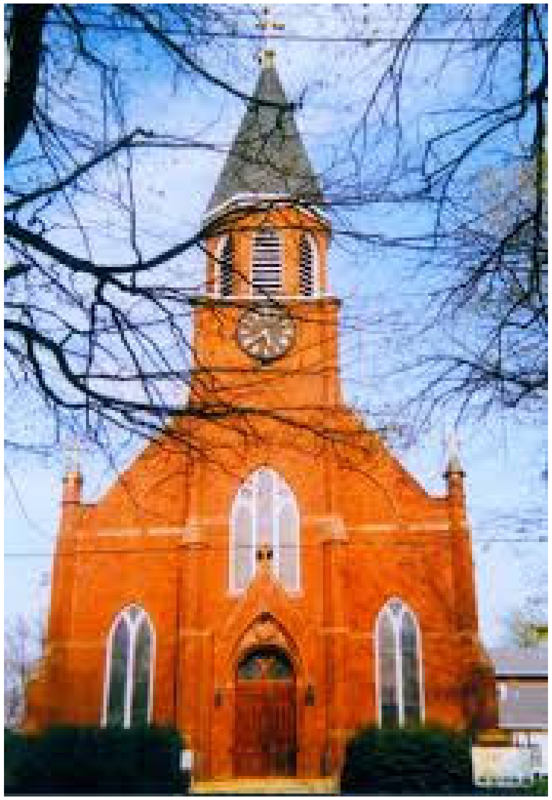
- **Unpatented mines and mining claims** (NRS 361.075)

Exemptions

- **Non-profit organizations, homes, lodges** (NRS 361.073, NRS 361.083, NRS 361.095, NRS 361.135)

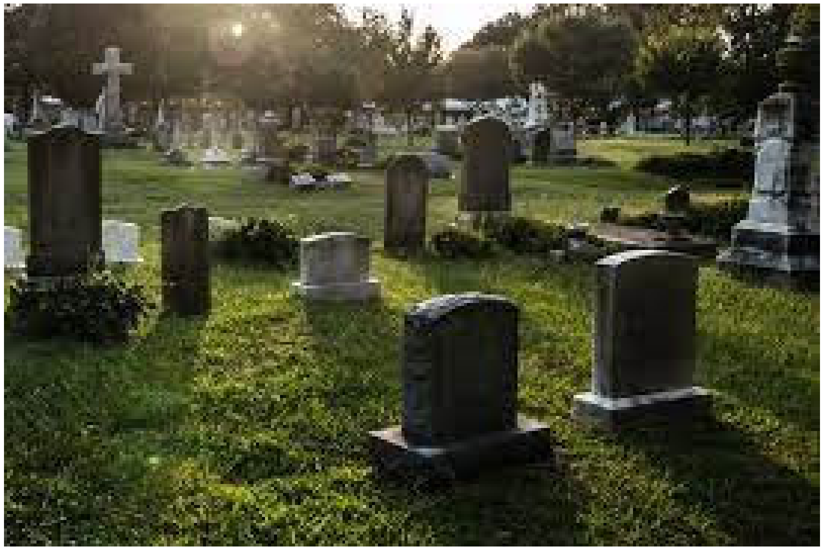
Exemptions

- **Churches &Chapels** (except wedding chapels) (NRS 361.125)



Exemptions

- **Cemeteries & graveyards** (NRS 361.130, NRS 361.132)

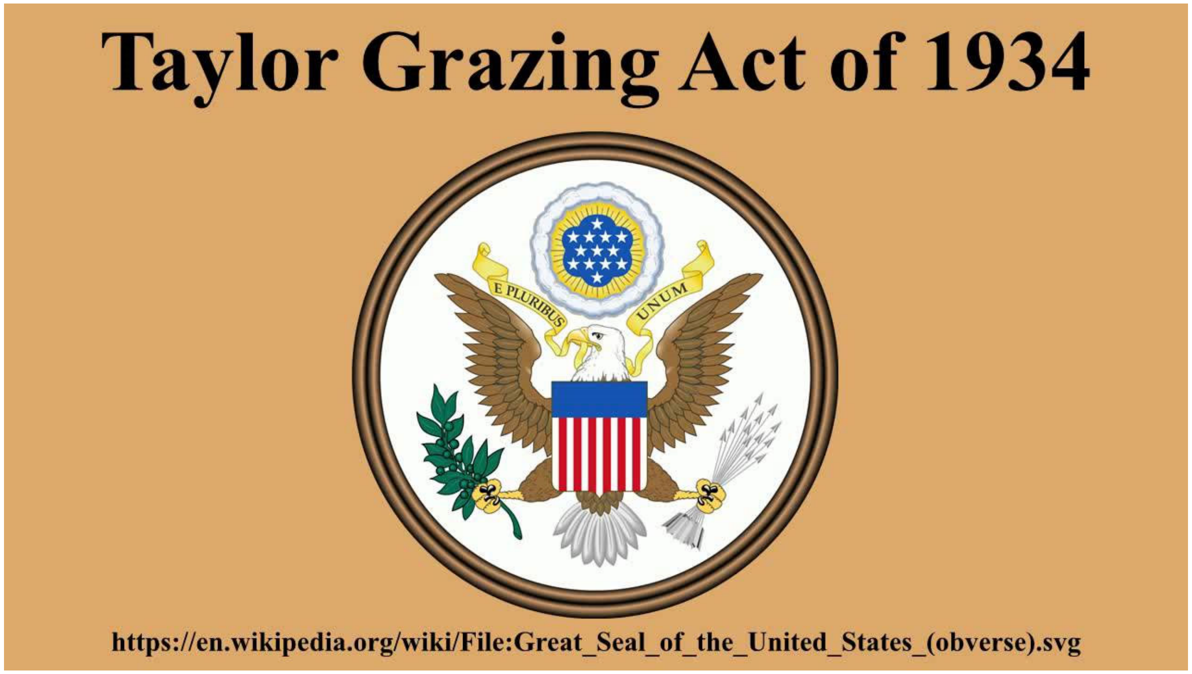


Exemptions

- **Intangible personal property** (NRS 361.228)

Exemptions

- **Taylor Grazing Act** – allows grazing on public lands to improve rangeland conditions and regulate their use (NRS 361.157)

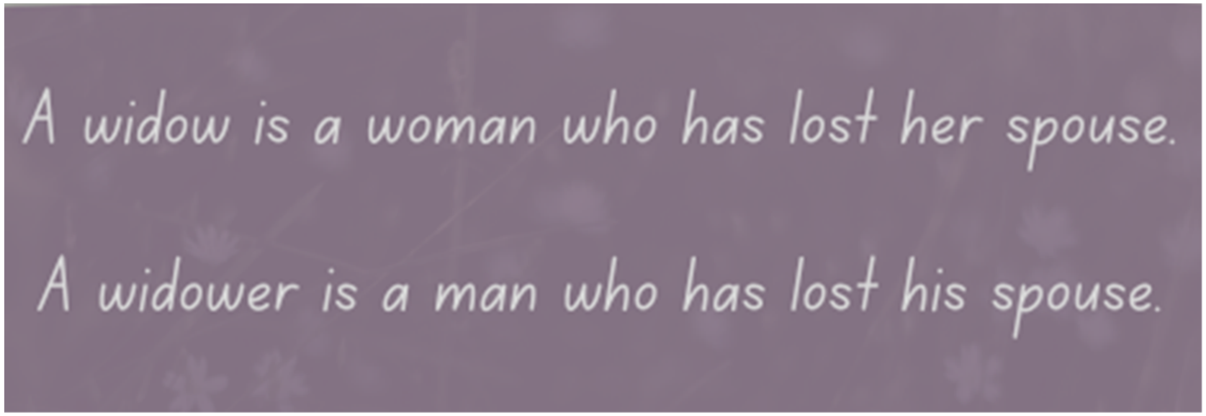


Partial Exemptions

- NRS 361.155 – Must be filed by June 15th
  - **Air/Water Pollution Control assets** (NRS 361.077)

Partial Exemptions

- NRS 361.155 – Must be filed by June 15th
  - **Widow/widower** (NRS 361.080)



Partial Exemptions

- NRS 361.155 – Must be filed by June 15th
  - **Blind** (NRS 361.085)

Partial Exemptions

- NRS 361.155 – Must be filed by June 15th
  - **Veterans/Disabled Veterans/Surviving Spouses** (NRS 361.090, NRS 361.091)

Partial Exemptions

- **Low-income housing projects** (NRS 361.082)

Partial Exemptions

- **Fallout Shelters** (NRS 361.078)

Land Valuation – Full Cash Value Defined

- NRS 361.227 says the county assessor should, when determining the full cash value of land, consider the following:
  - The lawful uses to which the land may be put

  - Its legal and physical restrictions
  - Its terrain

  - The uses of other land in the vicinity

Land Valuation – Full Cash Value Defined

- Full cash value is the most probable price which property would bring in a competitive and open market under all conditions requisite to a fair sale.

Cadastral Maps

- A cadastral map shows the boundaries of parcels and may include details of the resources associated with them such as:

- Physical structures on or beneath them
- Geology
- Soils
- Vegetation
- Manner of use

5 Types of Base Maps used with Cadastral Maps

- **Aerial Photography** – Photos of part of the earth's surface taken by a camera mounted in an aircraft for mapping purposes.

5 Types of Base Maps used with Cadastral Maps

- **<u>Rectified Aerial Photography</u>** – Corrections are made for tilt of the earth

(a) (b)

5 Types of Base Maps used with Cadastral Maps

- **Orthophotography** – The process of aerial photographs that have been rectified to produce an accurate image of the earth by removing tilt and relief displacements which occurred when the photo was taken.

5 Types of Base Maps used with Cadastral Maps

- **Planimetric** – A map designed to portray the horizontal positions of features; vertical information is specifically ignored.

5 Types of Base Maps used with Cadastral Maps

- **Topographic** – based on topographical surveys. Performed at large scales. These surveys are called topographical in the old sense of topography, showing a variety of landmarks and landscape information.

Land Identification Systems

- Metes and Bounds
- Lot and Block (Platted Legal Description)
- Geodetic Survey (Rectangular Coordinate)
- Rectangular Survey

Metes and Bounds

- Based on semi-permanent physical features (trees, boulders, roadways, etc.) or bearings on a compass.
- Earliest form of identification - the 13 original colonies were based on this method.

Metes and Bounds Example

"Beginning at a point on the southerly side of Kent Street, 100 feet easterly from the corner formed by the intersection of the southerly side of Kent Street and the easterly side of Broadway; thence southerly parallel to Broadway 100 feet, thence easterly parallel to Kent Street 20 feet, thence northerly parallel to Broadway 100 feet to the southerly side of Kent Street, and thence westerly along the southerly side of Kent Street, 20 feet to the point or place of beginning."

Lot and Block

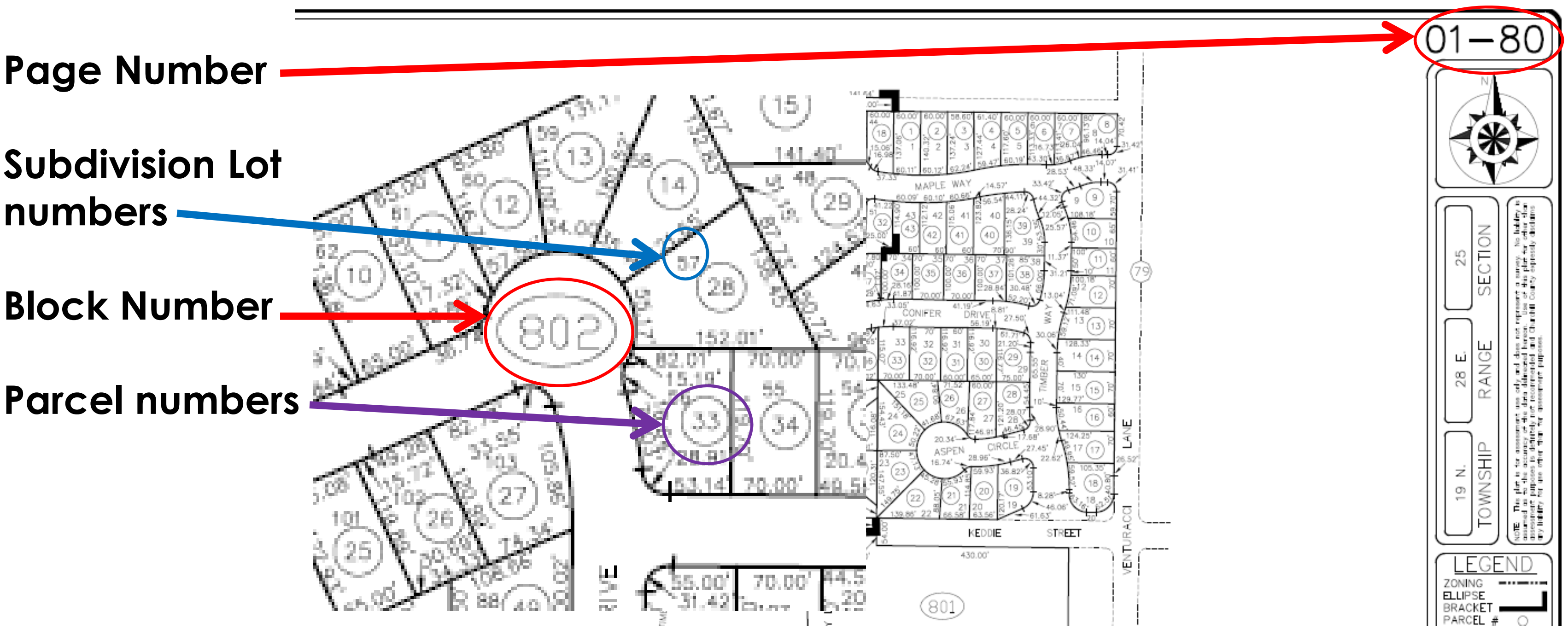
- A plat into which a larger parcel of land is subdivided into smaller units for the purpose of sale.
- Plat map is recorded.

A Parcel Number is a numerical code representing a parcel's legal description. It is made up of the following using this example:

001-802-33

- **001** is the page number in the plat book
- **802** is the block number
- **33** is the unique parcel identifier

Lot and Block Example



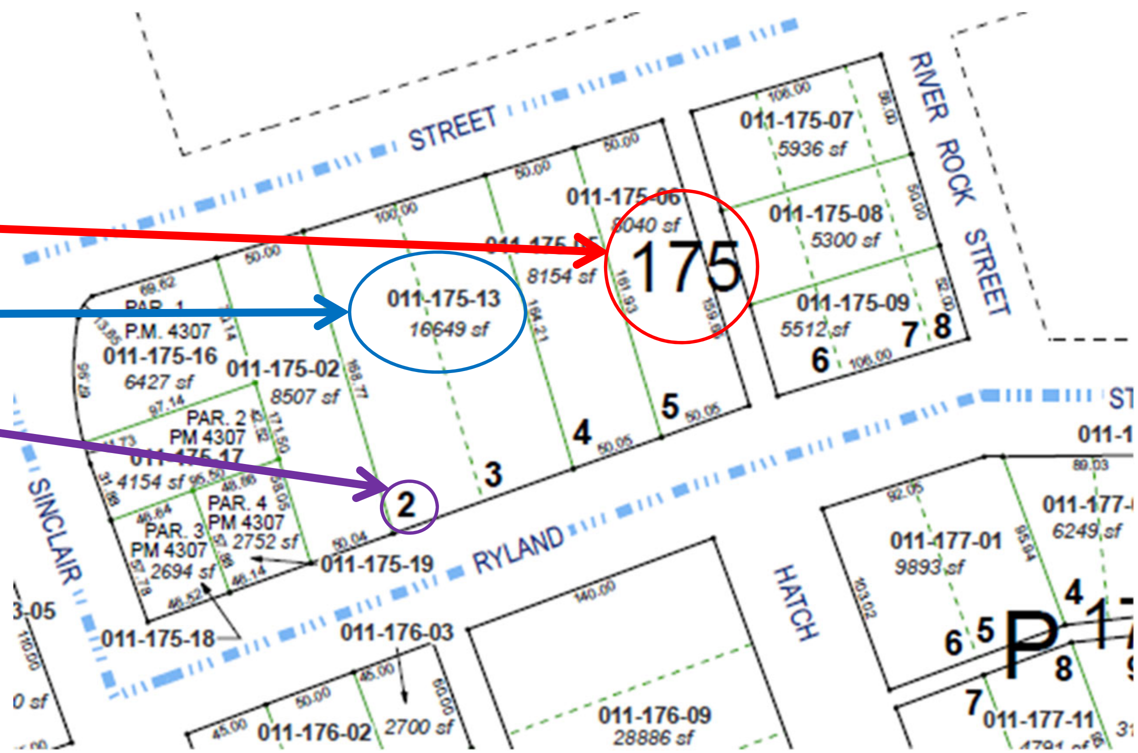
Lot and Block Example

Block Number

Parcel number

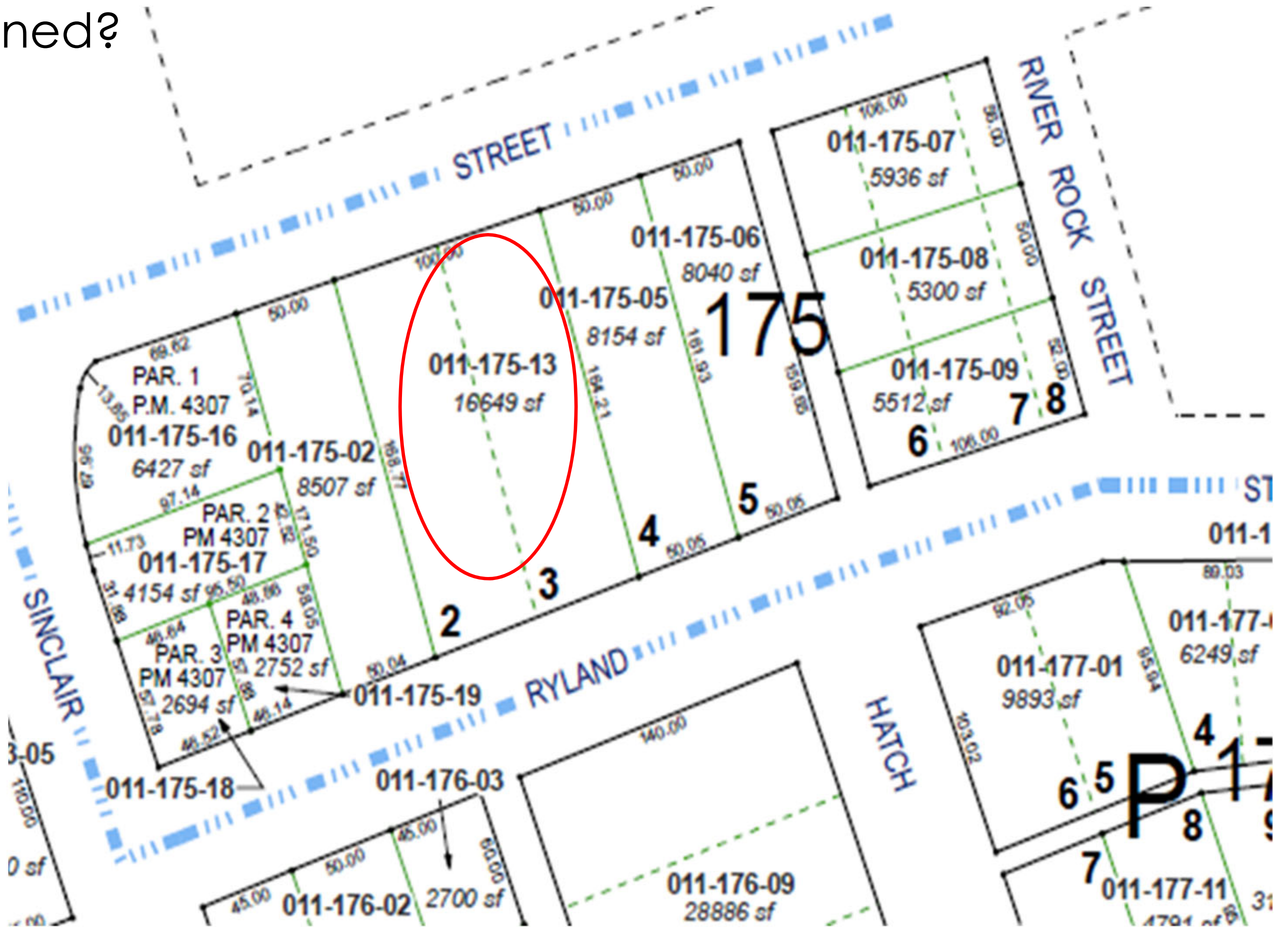
Subdivision Lot Number

Page Number not indicated in this example but you can get it from the first three numbers of the parcel number: 011



Lot and Block Practice

If APN 011-175-13 were subdivided, what parcel number would be assigned?

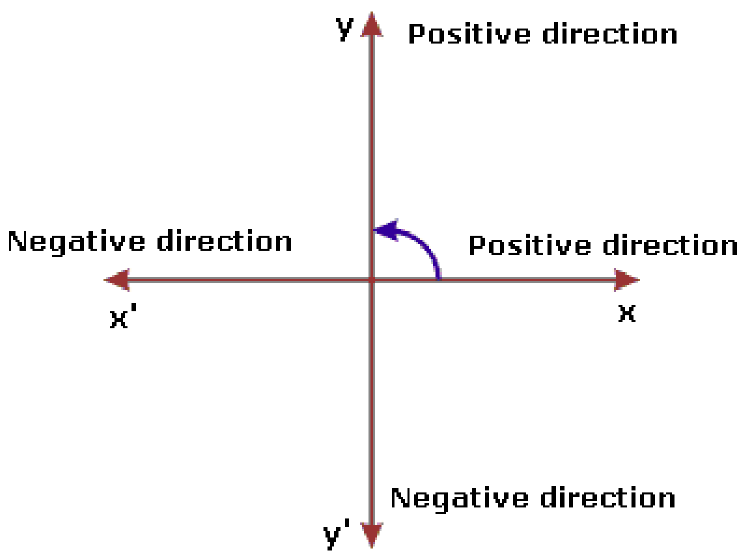


Use the next two highest numbers in that block: 011-175-20 and 011-175-21

Geodetic Survey System (Rectangular Coordinate)

- A land survey where boundaries are described as x,y coordinates on an x,y grid (used in GIS).

The position of a point in a plane is determined by two coordinates. The method is as follows:



Rectangular Survey

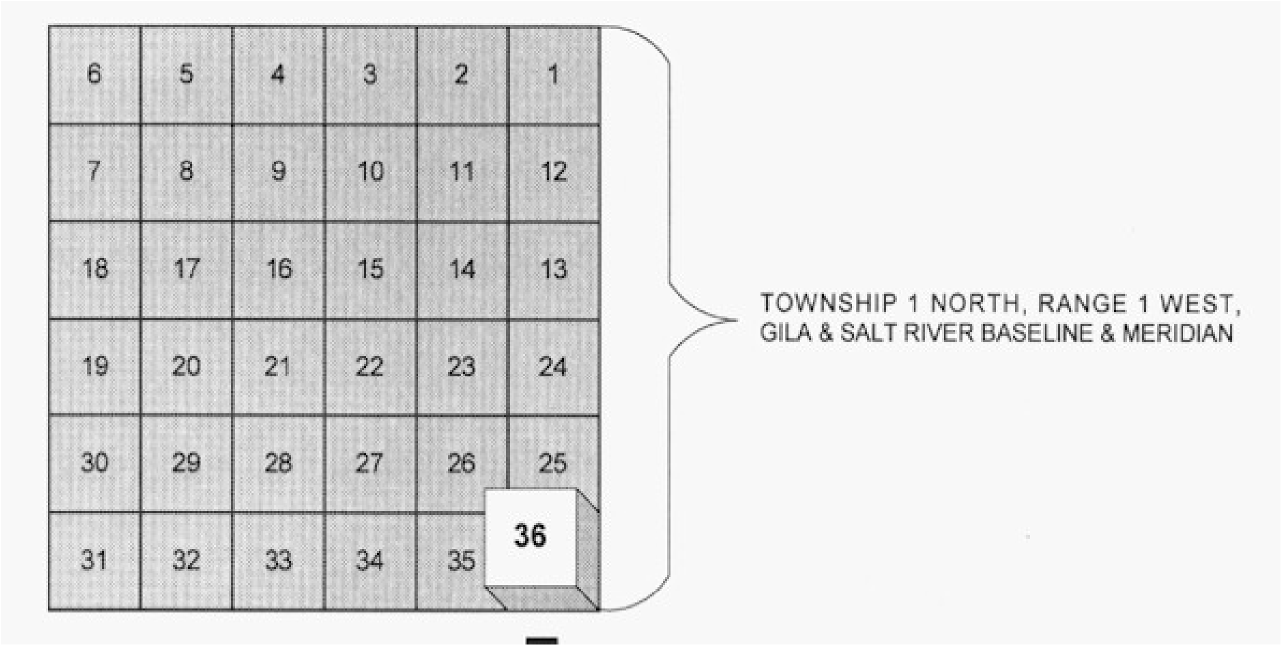
- Established by Congress in 1785 to dispose of public lands in an orderly way.
- Uses:
  - Meridians/Ranges (run north & south)

  - Baselines/Townships (run east & west)

Township

- 36 square miles
  - (6 miles x 6 miles)

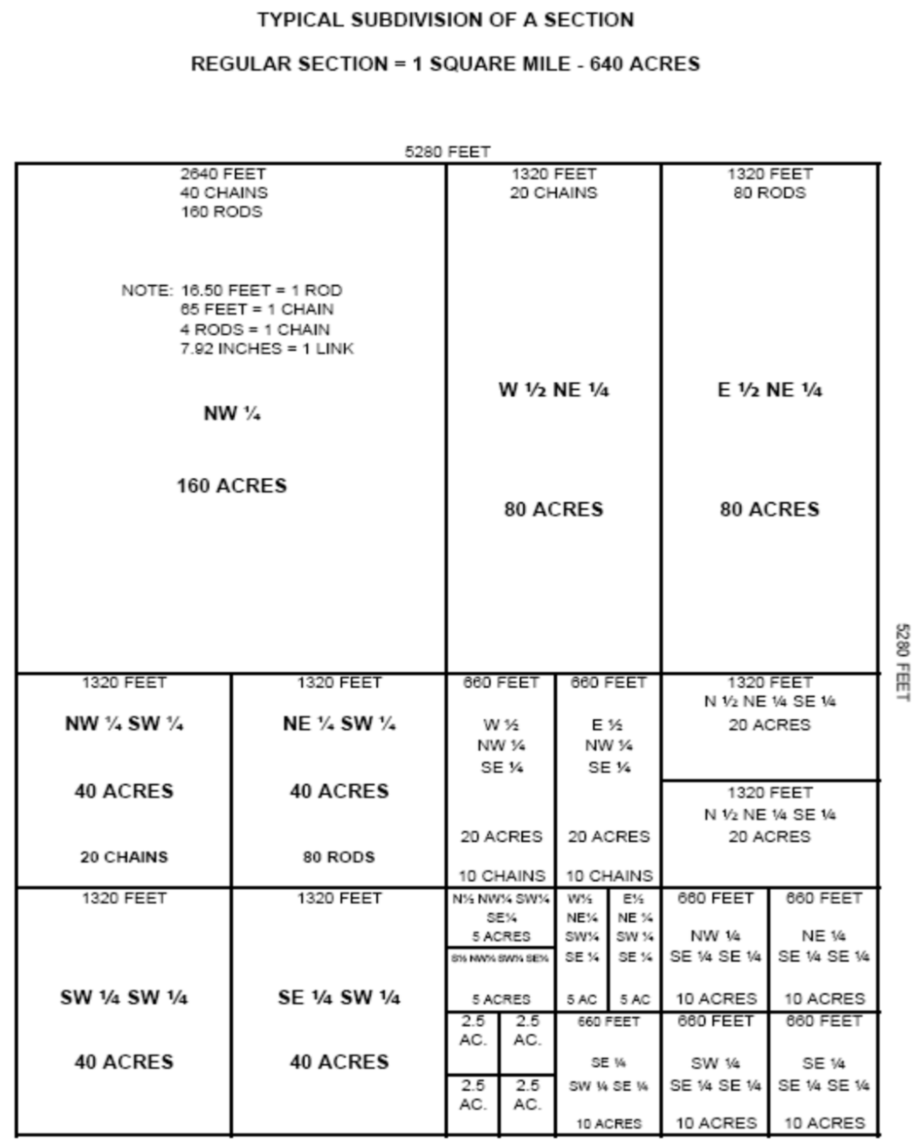
- Divided into 36 sections



Sections

- 1 square mile
  - 5,280 linear feet in a mile
- 640 acres
  - 43,560 sq ft in an acre
- Can be divided into smaller sections

Land Chart Handout



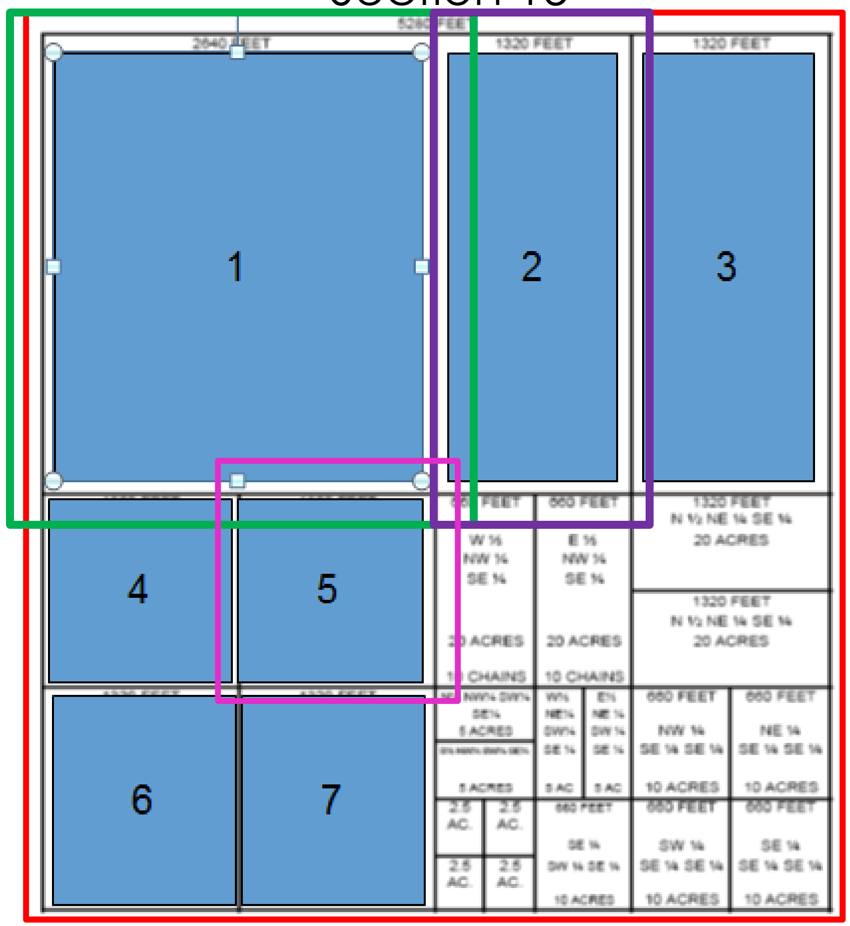
Rectangular Survey Practice

How many acres are in the following shaded areas?

- Section 15?
  - 640 ac
- Area 1?
  - 640/4 = 160 ac
- Area 2?
  - (640/4)/2 = 80 ac
- Area 5?
  - (640/4)/4 = 40 ac

Land Chart Practice

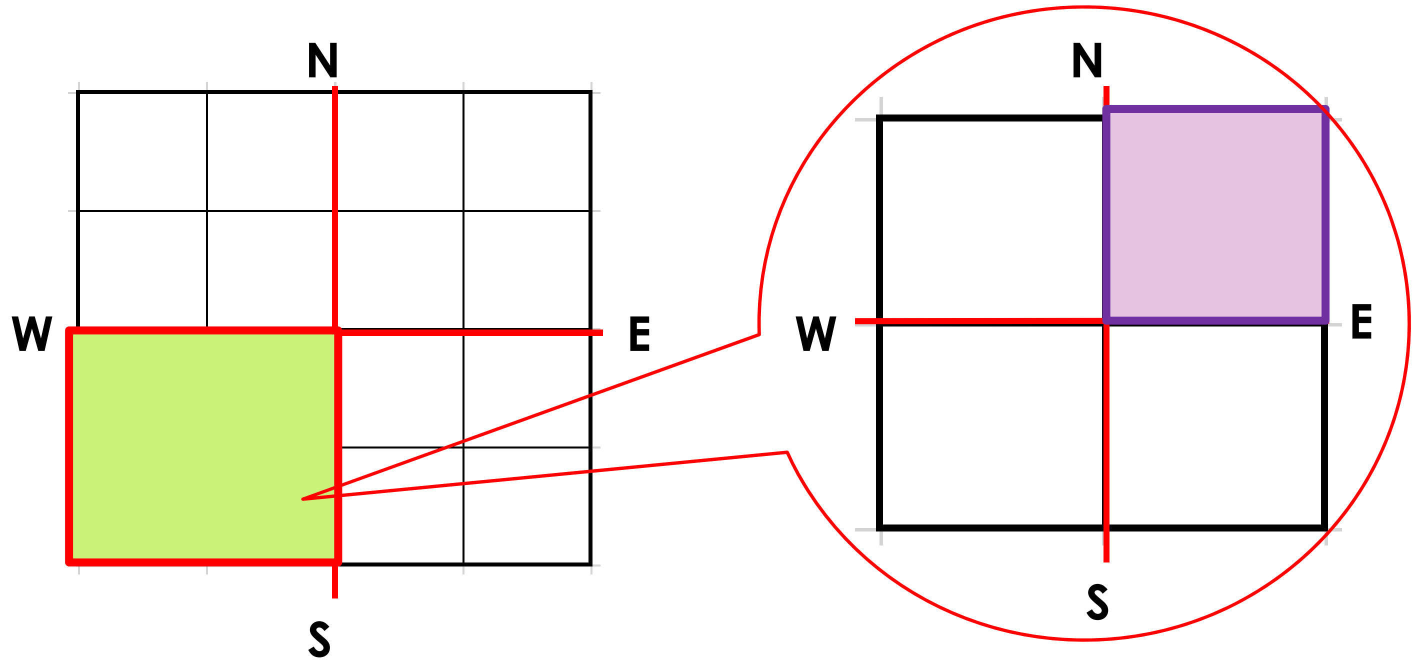
Section 15



Practice – Rectangular Survey

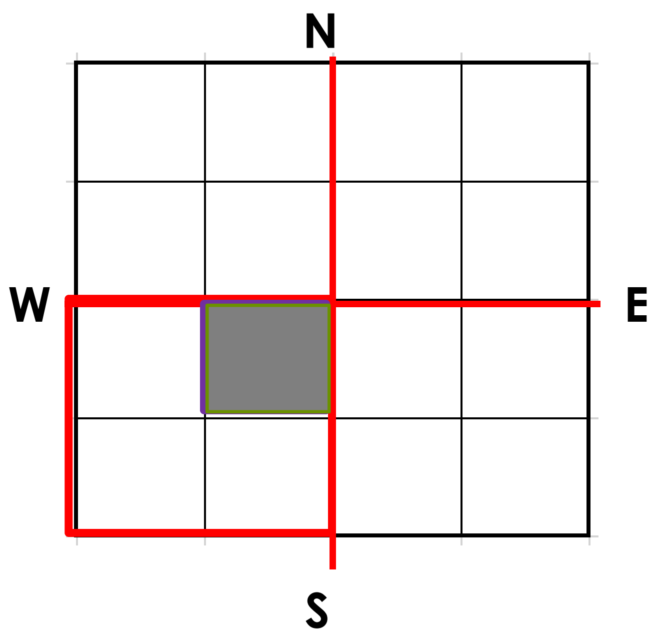
Locate the parcel with the legal description of Section 17, NE1/4SW1/4

Work backwards: NE ¼ of the SW ¼ of Section 17



Practice – Rectangular Survey

Work backwards: NE ¼ of the SW ¼ of Section 17



Rectangular Survey Practice

How many acres in the following description: The NW ¼ of the NE ¼ of the NW ¼ of the S/W ¼?

¼ of section = 160 ac

¼ of 160 ac = 40 ac

¼ of 40 ac = 10 ac

¼ of 10 ac = 2.5 ac

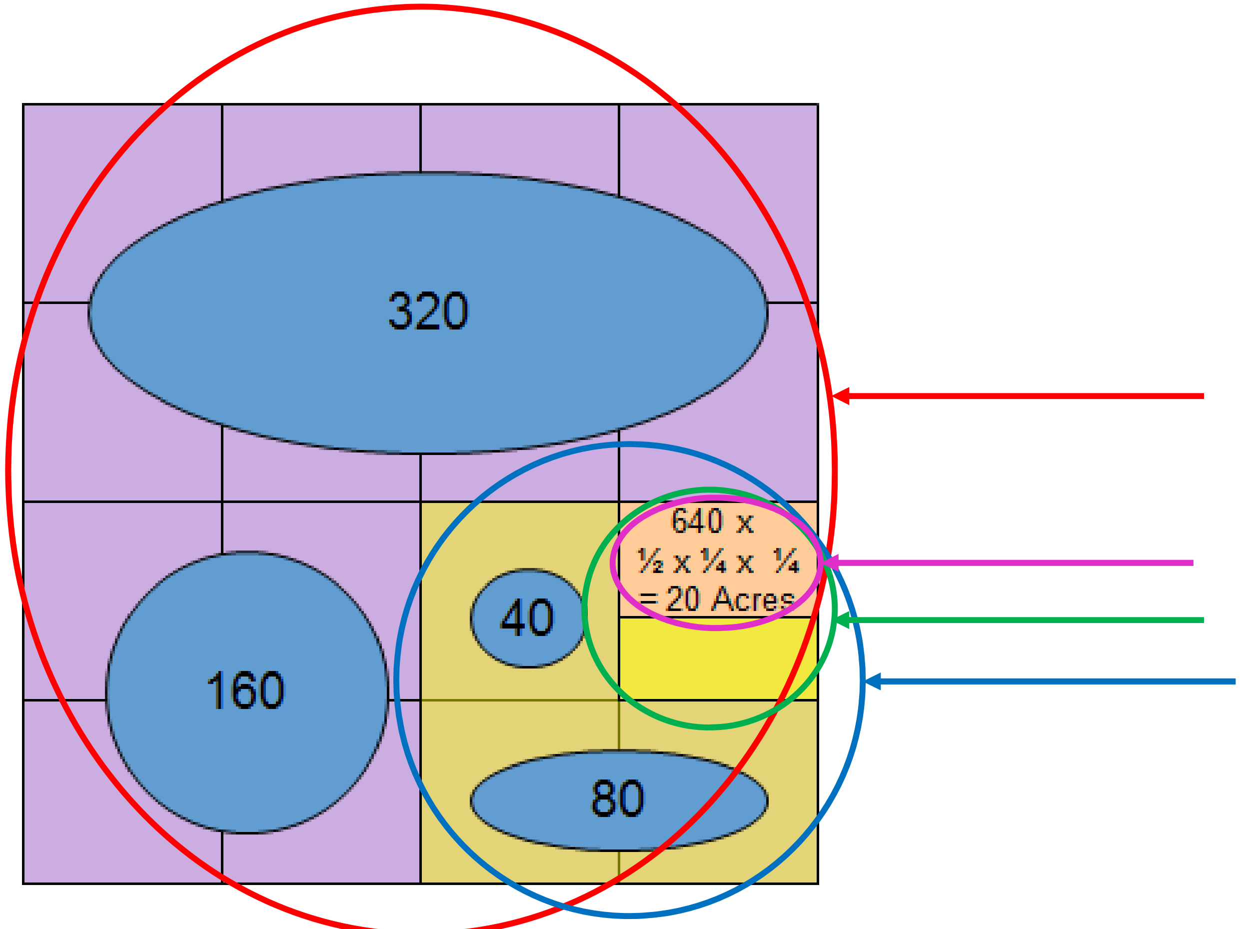
Or ¼ * ¼ * ¼ * ¼ = 1/256; 640 / 256 = 2.5 ac

Math problem #16

Rectangular Survey Practice

How many acres in the N ½ of the NE ¼ of the SE ¼ ?

20 acres

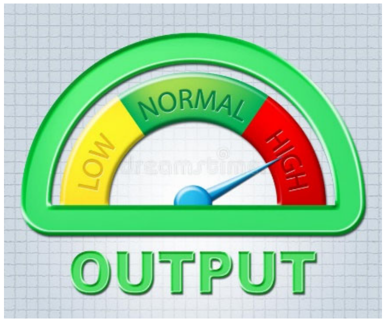


Appraisal

- An opinion of value
- Systematic, logical method of collection, analyzing and processing data into a reasonable value estimate.

Highest and Best Use

- Is the use of the land that is:
  - Legally permissible
  - Physically possible
  - Financially feasible
  - Maximally productive
- Considered for vacant land in Nevada



Four Agents of Production

- Land
  - Cost to acquire

Four Agents of Production

- Labor
  - Direct/indirect costs required to construct and market

Four Agents of Production

- Capital
  - Equipment, buildings, infrastructure

Four Agents of Production

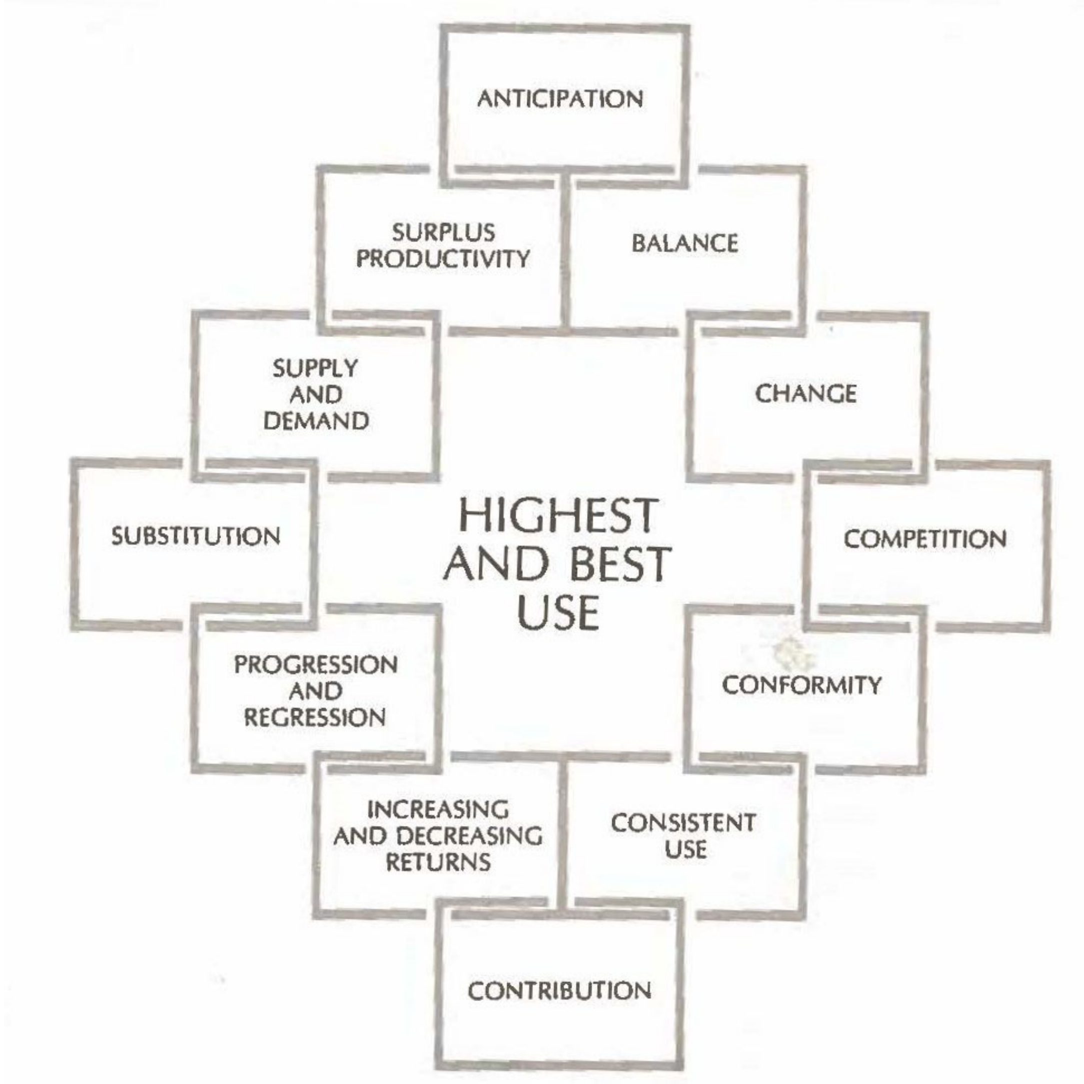
- Management/Entrepreneur
  - Profit

4 Forces that Affect Value

The four forces that affect value of real estate in a regional or neighborhood analysis (**P.E.G.S.**):

1. **P**hysical (environmental)
2. **E**conomic
3. **G**overnmental
4. **S**ocial

Principles of Value



Principles of Value

- <u>Anticipation</u>
  - Expected future benefits
  - Example: Purchase income-producing property like an apartment building for income and tax benefits

Principles of Value

- Balance
  - State of equilibrium
  - Example: Investing in commercial land in a neighborhood with many residential sites

Principles of Value

- Change
  - Market value is never constant
  - Cycles: Growth, stability, decline, revitalization
  - Example: Factors influencing property values are constantly changing so the property value itself is constantly changing.

Principles of Value

- Competition
  - Availability in harmony with demand
  - Two or more properties are trying to obtain the same thing

Principles of Value

- Conformity
  - Reasonable similarity among improvements
  - Example: Cookie Cutter Subdivision

Principles of Value

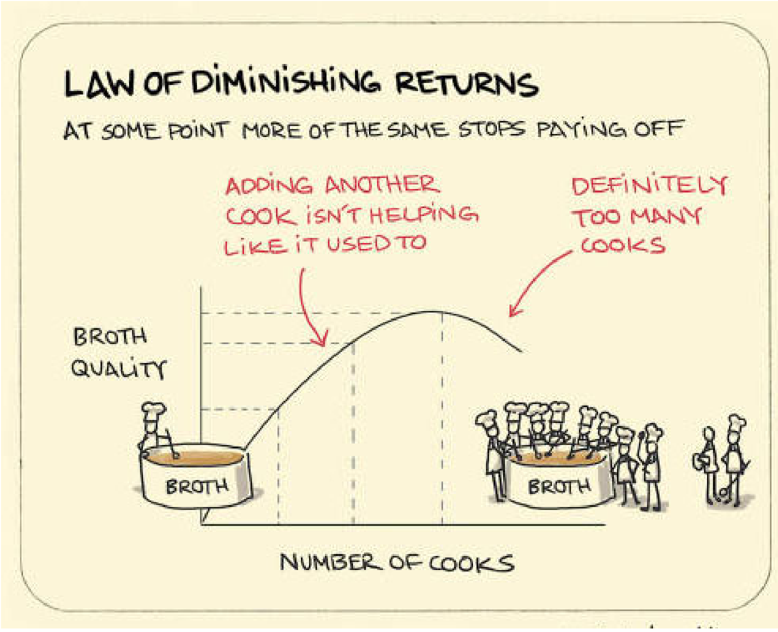
- <u>Consistent Use</u>
  - Entire property (land and buildings) valued with a single use.
  - Example: If the highest and best use for a site is for an apartment development, the house value cannot be added to the apartment site value

Principles of Value (continued)

- <u>Contribution</u>
  - The value of a component depends on its contribution to the whole. The property components must be in proper proportion if optimum value is to be achieved or sustained. An improper balance may result in an under-improvement or an over-improvement. **<u>Cost does not necessarily equal value.</u>**

Principles of Value (continued)

- Increasing & Decreasing Returns
  - Increases in the factors of production will produce increased returns, up to a certain point only. After that, any additional expenditure will not produce a return in line with additional investments.



Principles of Value (continued)

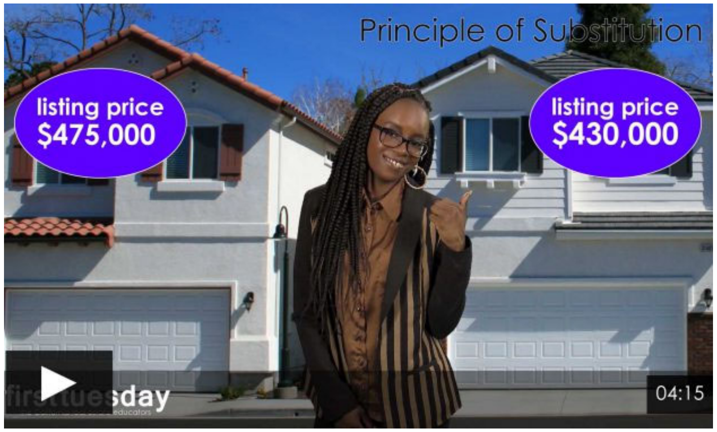
- Progression and Regression
  - Value of property is affected by value of surrounding properties.

Progression: An inexpensive home is more valuable in a neighborhood of expensive homes than it would be in a neighborhood of similar homes.

Regression: An expensive home is less valuable in a neighborhood of smaller or rundown homes.

Principles of Value (continued)

- Substitution
  - Market value set by cost of acquiring equally desirable and valuable substitute.
  - The basis to the three approaches to value.
  - Example: A 2-bedroom home in one neighborhood may be thousands more than a similar 2-bedroom home in a neighborhood a mile away.

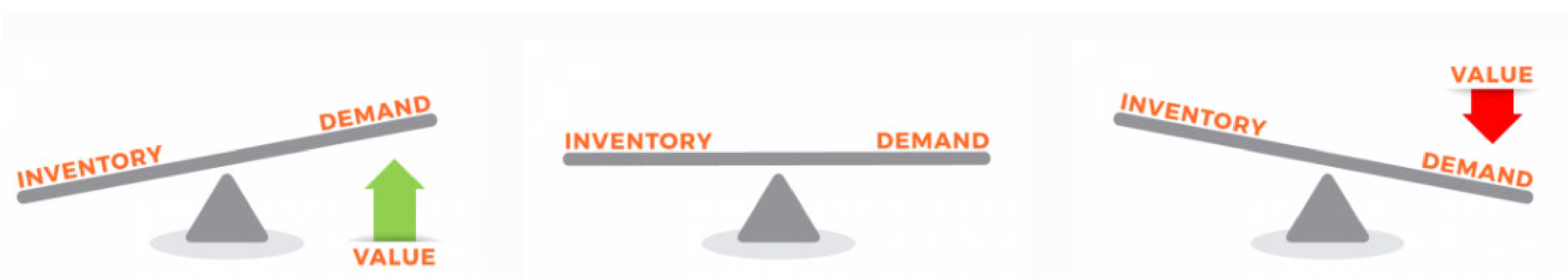


Principles of Value (continued)

- Surplus Productivity
  - Net income remaining after the costs of labor, management and capital have been deducted is attributed to the land and tends to fix land value.
  - Basis for estimating highest and best use of undeveloped property.

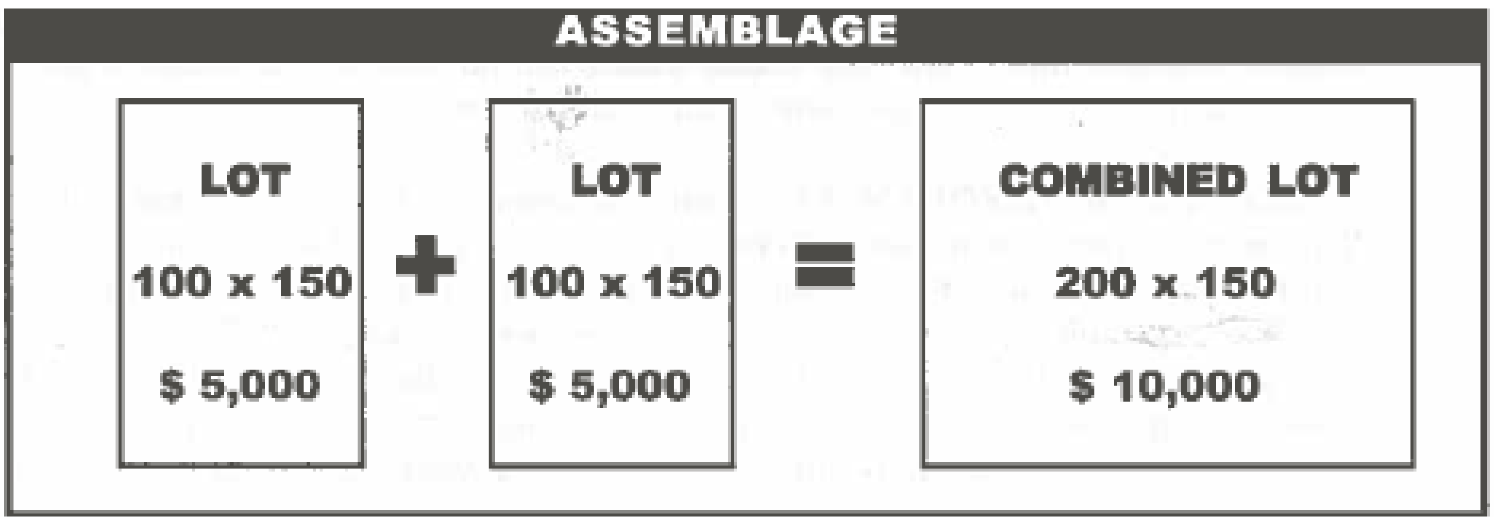
Principles of Value (continued)

- Supply and Demand
  - Goods that producers are willing to sell at a given price and the amount of a commodity that consumers buy at a given price during a specific period.
  - Example: When demand exceeds supply, prices rise; when supply exceeds demand, prices fall.



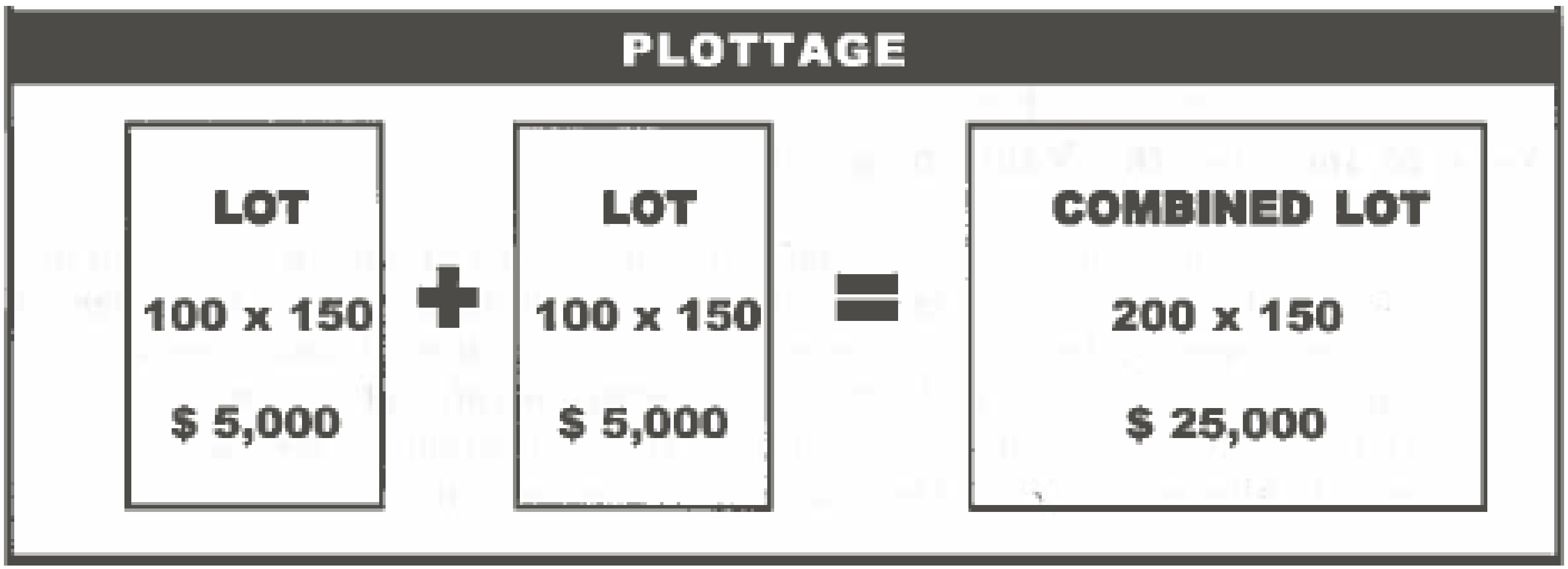
Land Valuation Terms

- **Assemblage** – combining or merging of adjacent properties into one common ownership or use (occasionally has lesser utility and lower value).



Land Valuation Terms

- **Plottage** – combining two or more properties into one large parcel having greater utility and unit value than when separately considered.



Land Valuation Terms

- **<u>Excess Land</u>** – NAC 361.122(3)(a) – Land that is not currently needed to serve or support an existing improvement and which *<u>has the potential to be sold separately from any land</u>* that is needed to serve or support an existing improvement.

Land Valuation Terms

- **<u>Surplus Land</u>** – NAC 361.122(3)(b) – Land that is not currently needed to serve or support an existing improvement but *<u>does not have an independent use separate from the existing improvement</u>* and does not have the potential to be sold separately.

Land Valuation – Units of Comparison

- Square Foot
  - For land being valued by the square foot method, calculate the total square footage of the lot and multiply by the indicated square foot value.
- Acre
  - For land being valued by the acre method, calculate the total acreage and multiply by the indicated per acre value.
- Front Foot
  - 65/35 rule states that the frontage of an irregular-shaped lot has 65% of the value.
  - 4-3-2-1 rule states that if you divide a regular lot into four equal parts, the first section (front) will have 40% of value, the second section 30%, the third section 20% and the last section 10%.
- Site
  - A parcel of land, with enhancements that make it ready for a building or structure
    - Utility connections
    - Roads
    - Etc.
- Buildable Units

Square Foot

Find the taxable value of this parcel, using a comparable sale average price of $16.00 per square foot.

Calculate the Rectangle (L*W)

50'*125' = 6,250 sf

Calculate the Triangle(1/2 L*W):

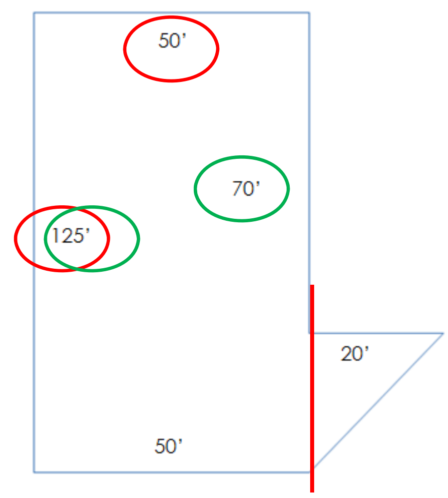
125'-70' = 55' * 20' = 1,100 sf / 2 = 550 sf

Calculate the Total Square Footage:

6,250+550 = 6,800 sf

Multiply by the Square Foot Value:

6,800 sf * $16.00/sf = $108,800



Math problem #17

Acre

The subject lot is 440' x 2,640'. If the value is $75,000 per acre, what is the value of the subject (Hint: 43,560 sf in an acre)?

Acres = (440*2,640) = 1,161,600 sf

= 1,161,600 / 43,560 = 26.67

Value = 26.67 * $75,000 = $2,000,250

Math problem #18

Front Foot

The subject property is a ½-acre vacant commercial lot with frontage on Lake Tahoe. If the lot is 220' in depth, what is the frontage? If the value per front foot is $11,000, what is the value of the lot on a front foot basis?

Front Foot = 43,560 / 2 = 21,780

21,780 / 220 = 99

Value per Front Foot = 99 * $11,000 = $1,089,000

Math problem #19

Front Foot

An owner wants to sell two acres of land with 300 linear feet of highway frontage. How deep is the lot?

One acre = 43,560 sq ft * 2 acres = 87,120 sq ft

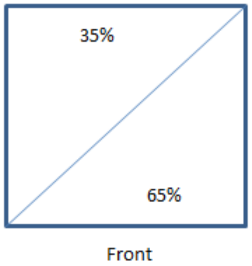
Highway frontage = 300 ln ft

87,120/300 = 290.4 ln ft deep

Math problem #20

65%-35% Rule

For valuation of irregular-shaped sites, the 65%-35% Rule suggests that the utility of the lot is affected by its shape. A rectangular lot having the same frontage and depth as a triangular lot would be 65% more valuable. Frontage is more valuable.



Calculate the value of the property if the frontage is 75' and the front foot value is $225 using the 65%/35% rule:

Calculate the rectangle:

45 lf * 225 = $10,125

Calculate the triangle:

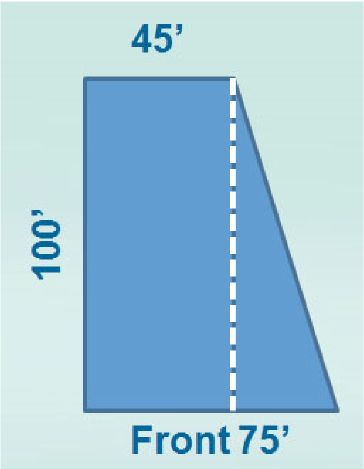
(75-45) = 30 lf of frontage

30 lf * 225 * = $6,750

$6,750 * .65 = $4,388

Add the values for the parcel value:

$10,125 + $4,388 = $14,513



Math problem #21

Methods of Land Valuation

- Sales Comparison – most reliable
  - Find comparable sales and adjust

Subject Property

Comparable 1

Comparable 2

Methods of Land Valuation

- Abstraction (Subtract)
  - Subtract RCNLD costs from sale price – the remainder is land value

Methods of Land Valuation

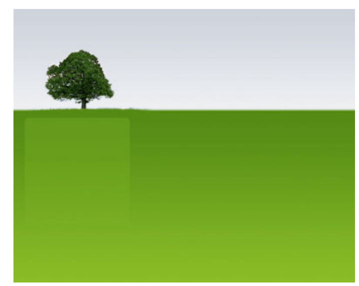
- Allocation (Ratio)
  - Principle of Balance
  - Assign portion of total property value to site and establish ratios to find value

5 parts total

or

4 parts

:



1 part

Methods of Land Valuation

- Capitalization of Ground Rent
  - Income approach to value
  - Hypothetical lease income and apply a capitalization rate
    - Examples: Surface parking lot or land that you own but you allow a fast-food restaurant to build on your property with a long-term lease

$$\frac{\text{NOI}}{\text{Cap Rate}} = \text{Value}$$

Methods of Land Valuation

- Land Residual
  - Income approach to value
  - Net income for the property is estimated and the cost of improvements is established. The income is divided between land and improvement and the appropriate cap rate is applied (IRV likes BLTs)

Methods of Land Valuation

- Cost of Development
  - Hypothetically develop the site, abstract the land value from the projected sales price minus costs
  - Primarily for land in transition (agricultural to subdivision)

Sales Comparison

- Most reliable for land valuation
  - Find comparable sales
  - Establish units of comparison
    - Time, size, shape, view, topography, financing, market conditions, etc.
  - Make adjustments to sales not to the subject
  - The sale with the least adjustment is most comparable

Practice – Sales Comparison

You are appraising a building site within an established single-family subdivision. From your investigations, you have found three recent comparable sales and have organized them in a market data grid.

The following adjustments are applicable:

1. A rectangular site sells for $1,000 more than an irregular site
2. A site with a good view sells for $5,000 more than a site with an average view.
3. A site with good topography sells for $3,000 more than a site with average topography.

What is the value of the Subject property?

Math Problem #22

Element	Subject	Sale 1	Adjustment	Sale 2	Adjustment	Sale 3	Adjustment
Sales Prices	**$18,000**	$17,000		$21,000		$12,500	
Shape	Rectangular	Rectangular		Rectangular		Irregular	**+ $1,000**
View	Good	Average	**+ $5,000**	Good		Average	**+ $5,000**
Topography	Average	Good	**- $3,000**	Good	**- $3,000**	Average	
Totals			**$19,000**		**$18,000**		**$18,500**

Abstraction

- Appraisal technique that involves subtracting from the sales price of improved parcels, the full contributory value of all items attributable to the value of the improvements thus yielding an estimate of the residual or remainder value of the land
- Example:
  - The subject property sold for $249,000 and the improvement value = $149,000. Determine the land value with the abstraction method.

    $249,000 - $149,000 = $100,000 abstracted land value

    Math Problem #23

Practice - Abstraction

Using abstraction, find the base lot value:

Math Problem #24

	Sales Price	Improvement Value	Math	Land Value
Sale 1	$152,000	$114,000	$152,000 - $114,000	$38,000
Sale 2	$124,000	$93,000	$124,000 - $93,000	$31,000
Sale 3	$138,000	$103,500	$138,000 - $103,500	$34,500
Sale 4	$155,000	$116,250	$155,000 - $116,250	$38,750
		Average	$38,000 + $31,000 + $34,500 + $38,750 / 4	$35,563
		Base Lot Value		$35,563

Allocation

- Appraisal technique that involves gathering information about comparable sales and creating a ratio between land and total value and then applying the ratio to the subject property.

- Example:
  - The subject property has a land to building ratio of 1:6 and sold for $49,000. Determine the land value with the allocation method.

  - All parts of the property equals 7 parts – 1 part land, 6 parts building

  - Calculate:

    $49,000 / 7 = $7,000

    Math Problem #25

Practice – Allocation

Using the allocation method, what is the indicated land value for the subject property?

Sale	Sales Price	Vacant Lot Price	Allocation	Allocation Value
Subject	$133,000		$133,000 * .2906 =	$38,644.77
Sale 1	$190,000	$50,000	$50,000 / $190,000 =	0.2632
Sale 2	$110,000	$45,000	$45,000 / $110,000 =	0.4091
Sale 3	$140,000	$35,000	$35,000 / $140,000 =	0.2500
Sale 4	$125,000	$30,000	$30,000 / $125,000 =	0.2400

Rate (R) = Value(V)/Sale Price(I)

Average =
(.2632 + .4091 + .2500 + .2400) / 4 = 0.2906

Math Problem #26

Capitalization of Ground Rent

- The amount paid for the right to use a parcel of land according to the terms of a ground lease.
- Used when the income from the property is completely independent of any improvements.
- Example:
  - A vacant parcel is rented for $6,000/yr on a net lease having 20 years to run. 8% is considered a fair return. The capitalized value of the land is:
    - 6000 / 8% = $75,000

Math Problem #27

Land Residual Technique

Income Approach

Formula (IRV likes BLTs):

NOI – Building Income = Land Income (income residual to the land)

Land Income / Land Rate = Land Value

IRV

I = NOI

R = Cap Rate

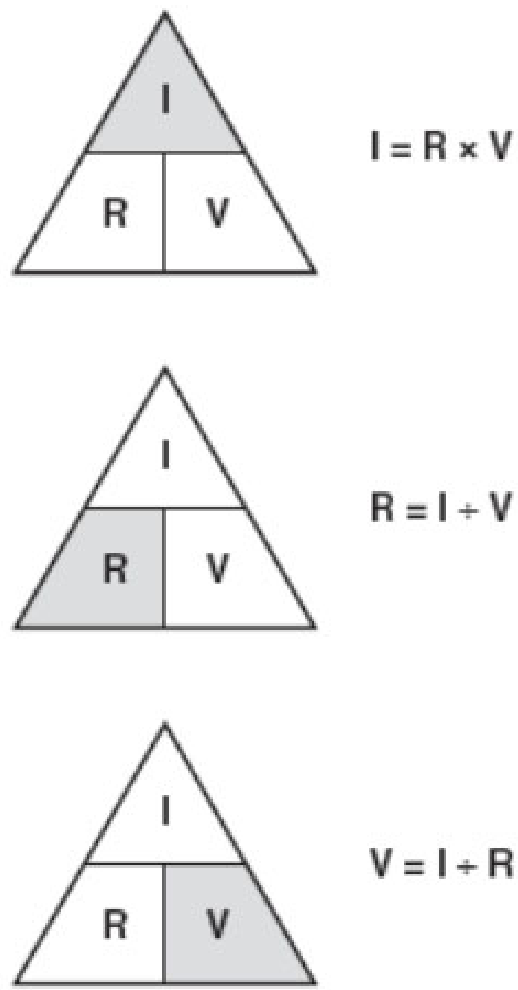
V = Value (Sales Price)

Variations:

I = R * V

R = I / V

V = I / R



IRV Likes BLT'S

	I =	R *	V
B	I = R * V	Discount + Recapture + (Nominal TR * Assessment Ratio)	V = I / R
+ L	I = R * V	Discount + (Nominal TR * Assessment Ratio)	V = I / R
= T	NOI = VI + LI		V = BV + LV

Practice - IRV Likes BLT's

NOI is $40,000. Income attributable to the building is $32,000. If the land capitalization rate is 8%, what is the value of the land?

Math Problem #28

	I	R	V
B	$32,000		
L	L = T – B L = $40,000 - $32,000 L = $8,000	0.08	LV = I / R LV = $8,000 / .08 LV = $100,000
T	$40,000		

Step 1 – Blue; Step 2 - Pink

Practice – IRV Likes BLTs

Building Value = $1,000,000
Building Rate = .14
Land Rate = .09
Total Income = $167,000

Math Problem #29

	I	R	V
B	I = R * V I = .14 * $1,000,000 I = $140,000	.14	$1,000,000
L	L = T - B L = $167,000 - $140,000 L = $27,000	.09	LV = I / 4 L = $27,000 / .09 L = $300,000
T	$167,000		TV = B + L L = $1,000,000 + $300,000 L = $1,300,000

Agricultural Land

- NRS 361A.030 – Agricultural use means:
  - Business venture for profit producing **$5,000** gross income by:
    - raising crops
    - raising livestock
    - operating a feed lot
    - raising furbearing animals or bees
    - operating a dairy
    - any other cause determined and verified by the Department to constitute agriculture use.
- Application due on or before June 1st (NRS 361A.110)
  - Filed with the County Assessor if **more** than 20 acres
  - Filed with the Department of Taxation if **less** than 20 acres
- Appealed to the County Board of Equalization by January 15th (NRS 361A.160)

Ag Land Classifications

- **C** - Cultivated
- **P** - Pasture
- **I** - Intensive Use
- **N** - Native Meadow/Wild Hay Land
- **G** - Grazing

Cultivated Land

- Land developed for agricultural use and is no longer in its natural condition
- Wheat, Corn, Alfalfa

Pasture Land

- Not "harvested or stored"
- Measured by the "carrying capacity" per acre

Intensive Use

- Does not depend on the quality of the soil for production
- Operations whose products do not grow out of the soil but whose operations are carried out entirely on the soil
- Dairies, feed lots

Native Meadow Land or Wild Hay Land

- Native land irrigated by streams or rivers but it has not been cultivated
- Natural grass baled and stored for use

Grazing Land

- Usually lacks irrigation
- Has a lower carrying capacity per acre than pasture land.
- It is commonly identified as “range land”, either open or fenced.

Farmstead

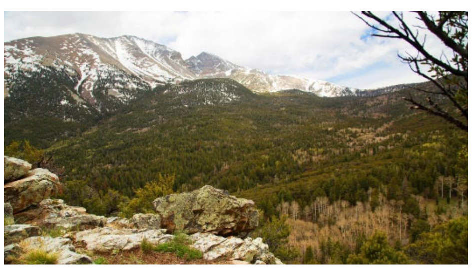
- Land covered by a residence or is necessary to support a residence
- Taxable Value computed according to NRS 361.227
- Any remaining farmstead area that is part of the operation is valued by applying the same value as the highest land classification used for that operation.

Converted to Higher Use

- NRS 361A.031 – Converted to a higher use means (**P.R.E.Z**):
  - **P**hysical alteration of the surface enabling a higher use (grading and preparation for subdivision)
  - **R**ecording a final map or parcel map which creates one or more parcels not intended for agricultural use (subdivision map)
  - **E**xistence of a final map or parcel map which creates one or more parcels not intended for agricultural use (subdivision map)
  - Change in **Z**oning to a higher use made at the request of the owner (agricultural to commercial)

Open Space

- A program for land preservation, as well as for sites designated as historic by the Office of Historic Preservation.
  - Includes Golf Courses.
- Defined in NRS 361A.050 and NRS 278.250
- The Board of County Commissioners approves agricultural applications.



Golf Course

- NRS 361A.0315 – Golf Course means real property that may be used for golfing or golfing practice by the public or a private club
- Improvements include turf, bunkers, trees, irrigation, lakes, lake liners, bridges, practice ranges, golf greens, golf tees, paths and trails.
- Does **NOT** include:
  - A commercial driving range not operated in conjunction with the golf course
  - Clubhouse, pro shop, restaurant or other buildings associated with the golf course

Open Space Valuation (NAC 361A.390)

- The Nevada Tax Commission adopted a formula that grants open-space us assessments (except golf courses) a discount of 9% for a term of 3-1/2 years which yields a **discount factor** of **0.74**
- **Formula:** Taxable Value * 0.74 = Open-Space Taxable Value * .35 = Assessed Value
- For open-space historic sites, the factor of 0.74 is applied to both land and improvements

Open-Space Historical Building

The subject property is a registered historical building on a one-acre site and it qualifies as open-space. The full cash value of comparable land nearby, which is not open space, equals $100,000 per acre. The taxable value (RCNLD) of the subject improvements equals $50,000.

Land: $100,000 * 0.74 = $74,000 * 35% = $25,900 (reduced AV)

Improvements: $50,000 * 0.74 = $37,000 * 35% = $12,950 (reduced AV)

Total open-space use assessed value: $25,900 + $12,950 = $38,850

Same property **without** the open-space tax deferral:
Land: $100,000 * 35% = $35,000
Improvements: $50,000 * 35% = $17,500
Total Assessed Value = $52,500
Math Problem #30

Open Space Valuation Practice

You have appraised a 100-year old historical residential property at $100,000 Replacement Cost New for the improvements and $15,000 full cash value for the land. The property qualified for open-space deferment with a discount factor of 0.74. The assessment ratio is 35%. What is the total assessed value?

Calculate the Depreciated Value of the Improvements. (Hint: the property is historic so the residual value is 25%)

$100,000 * .25 = $25,000

Add the land value to the improvement value:

$25,000 + 15,000 = $40,000

Apply the open-space factor of 0.74:

$40,000 * 0.74 = $29,600

Find the assessed value at a rate of 35%:

$29,600 * .35 = $10,360

Math Problem #31


TIME FOR A
Break

Three Approaches to Value

- Cost Approach
  - Estimate value of land in its current use
  - Estimate RCNLD of improvements
    - NAC 361.128 – RCN is to be done using Marshall & Swift Costing Manuals or the Manual of Rural Building Costs
  - Add land and improvements together for value
- Sales Comparison Approach
  - Locate comparable sales of like property
  - Make adjustments to the comparable sales (lump sum or percentage)
  - Select the best indicator of value for the subject
- Income Approach
  - Analyze the company's income statement
  - Use capitalization rates to estimate a value

Cost Approach

- Based on the **Principle of Substitution** – a rational, informed buyer will pay no more for a property than the cost of building an acceptable substitute
- Most useful for:
  - New or nearly new improvements
  - Properties not frequently exchanged in the market
    - Schools
    - Hospitals
    - Churches
  - Adaptation to mass appraisal techniques

Cost Approach

- Estimate the value of the land as if it were vacant, considering its current use
- Estimate Replacement Cost New or Reproduction Cost New of the improvements
- Estimate the amount of accrued depreciation and obsolescence
- Subtract the depreciation/obsolescence from estimated improvement value
- Add the value of the land

- Site(Land) Value + RCN – Depreciation = Value

Cost Approach

Reproduction cost = exact replica

Replacement Cost = similar utility

Building Costs

- There are two types of costs associated with building:
  - Direct (Had) Costs – costs in a project that are not variable
    - Labor
    - Materials
  - Indirect (Soft) Costs – costs in a project that are variable
    - Permitting
    - Financing
    - Taxes
    - Expenses and allowances for items other than labor and/or materials.

Property Types

- Residential
  - Single-family homes, apartments, condos

Property Types

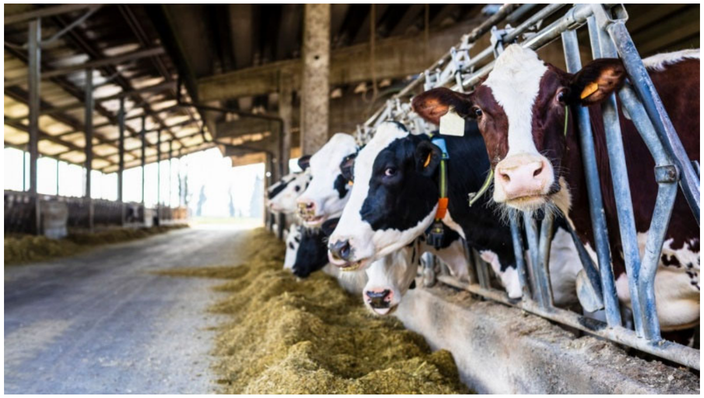
- Commercial
  - Stores, supermarkets, banks, office buildings, hospitals, restaurants, theaters, hotels/motels, churches, etc.

Property Types

- Industrial
  - Warehouses, light and heavy industrial buildings

Property Types

- Rural
  - Barns, farm buildings, silos



Commercial Building Construction Types

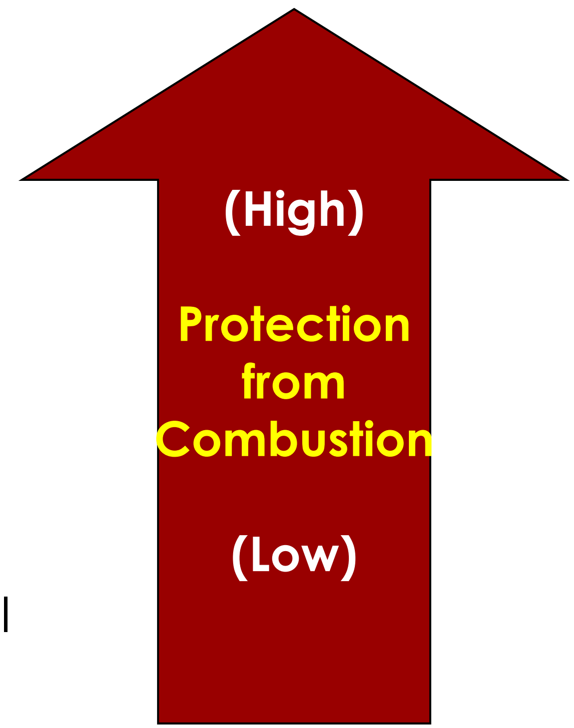
Class A – Fire-proofed structural steel frames with fire-proofed concrete or concrete/steel floors.

Class B – Fire-resistant, reinforced concrete frames with concrete or fire-proofed concrete or concrete/steel floors.

Class C – Masonry/concrete walls with wood, steel or concrete floor.

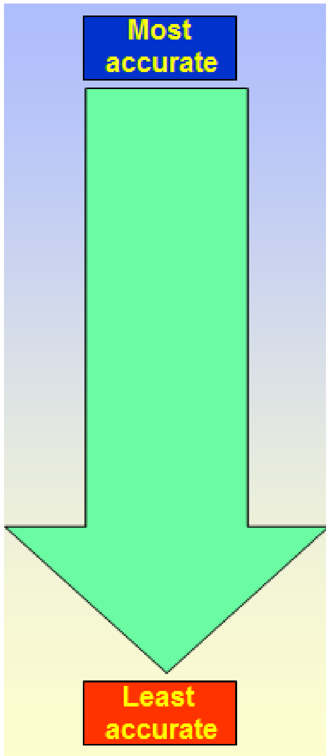
Class D – Wood or steel studs with wood or steel frame and wood, steel or concrete floor.

Class S – Metal walls and wood, steel or concrete floors.



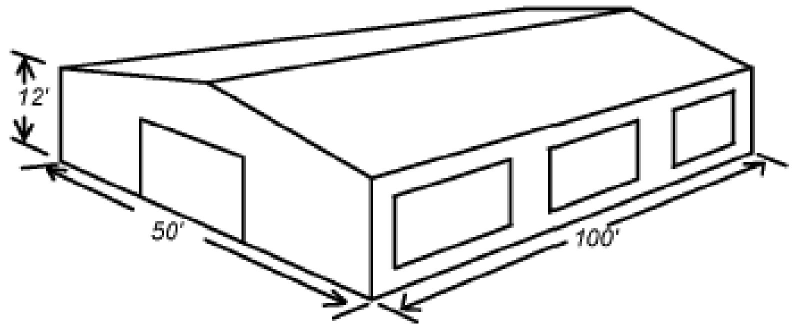
Methods of Cost Analysis

- Four methods (**Q.U.C.F.**):
  - **Q**uantity Survey Method
    - Every component is counted and valued (material, equipment, labor, overhead and fees)
    - Most accurate and detailed
    - Most difficult and time-consuming
    - Not generally used by appraisers
    - Used by builders and contractors
  - **U**nit-In-Place Method
    - Combines Direct and Indirect costs of each building component
    - Uses components like the roof, foundation, walls, etc.
  - Square Foot Method (**C**ost)
    - Multiplies area by a value from an authority source
    - Uses cost data available from cost services and/or manuals
    - Best method for mass appraisal
      - Periodic revaluation of all properties within a jurisdiction
  - Cost Index Method (**F**actored historical)
    - Estimates building cost by multiplying its original cost by an index factor based on when it was built
    - Least accurate
    - Results in a reproduction cost of the improvement
      - Useful for unusual or special-purpose structures



Unit-In-Place Method

- Segregated Cost Method



1. The building is occupied as an industrial, so Section 44 is selected.

STORES AND COMMERCIALS 43	GARAGES, INDUSTRIALS, LOFTS, WAREHOUSES 44	OFFICES, MEDICAL & PUBLIC BLDGS. 45

2. The general quality and design is average.

COST RATING RANGE

1	**2**	**3**	**4**
Low	Average	Above Average	High

3. $ Foundation unit cost
   \+ Frame unit cost
   \+ Floor unit cost
   \+ Electrical unit cost

4. $ Total of Floor Area unit costs*	X	Floor Area (5,000 sq. ft.)	= **$ Floor Area Cost**
$ Wall unit cost	X	Wall Area (3,600 sq. ft.)	= **$ Wall Cost**

$ Roof Structure unit cost
\+ Roof Cover unit cost

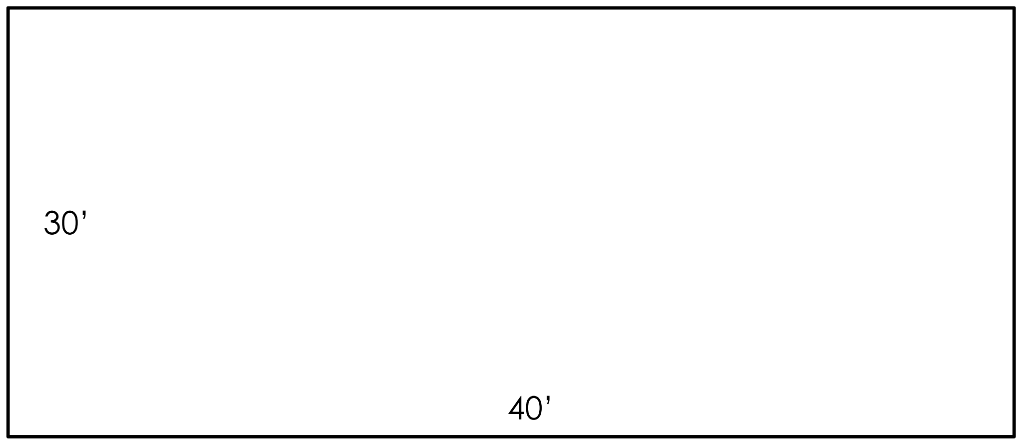
$ Total of Roof unit costs	X	Ground Floor Area (5,000 sq. ft.)	= **$ Roof Cost**

Floor Area Cost + Wall Cost + Roof Cost = $ Total Preliminary Cost

Square Foot (Cost) Method

Calculate square footage of improvement and a apply a per square foot cost.

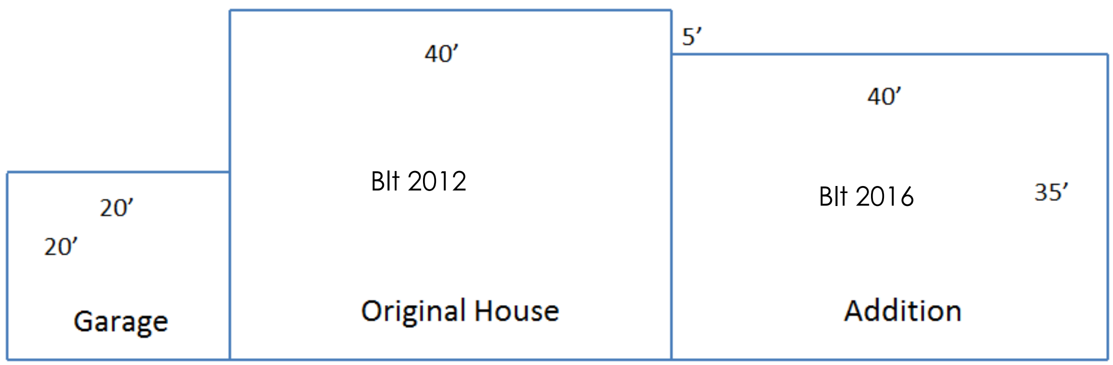
House	
Area	**Sq Ft**
800	$82.00
1,000	$73.00
1,400	$67.00
1,800	$55.00



Square Foot (**C**ost) Method

The subject property is a single-family home built in 2012 with an addition, comparable in quality, that was built in 2016.

House	
Area	**Sq Ft**
800	$82.00
1,000	$73.00
1,400	$67.00
1,800	$55.00



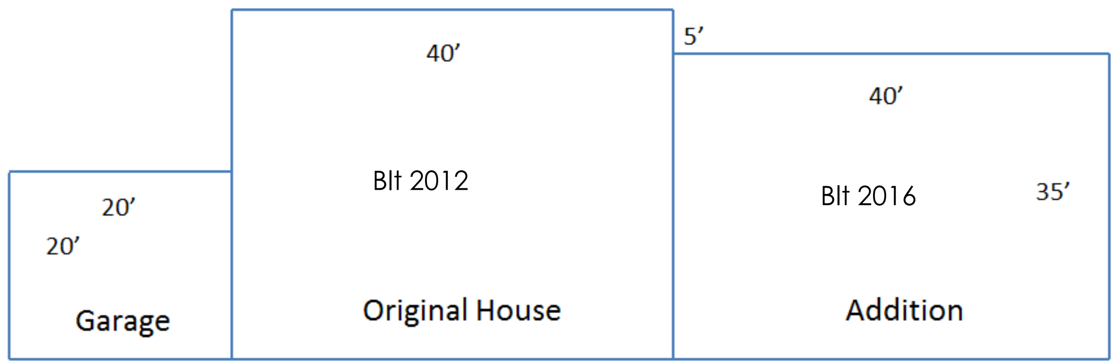
What is the appropriate method of valuation?

Square Foot or Cost

Square Foot (**C**ost) Method

The subject property is a single-family home built in 2012 with an addition, comparable in quality, that was built in 2016.

House	
Area	Sq Ft
800	$82.00
1,000	$73.00
1,400	$67.00
1,800	$55.00



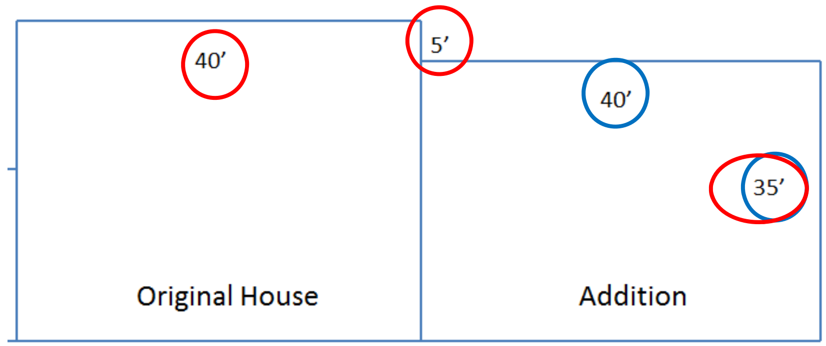
What is the adjusted actual age of the improvements?

	Size	Sq Ft	Math	Percent	Year Blt	Math	Date
Original	40x40 =	1600	1600 / 3000 =	**0.533333**	2012	2012 * 53% =	**1066.36**
Addition	35x40 =	1400	1400 / 3000 =	**0.466667**	2016	2016 * 47% =	**947.52**
		3000					**2013.88 or 2014**

Math Problem #32 Step 1 – Pink, Step 2 – Blue, Step 3 - Red

Calculate Per Square Foot Cost

Calculate the square footage using the following sketch:



Addition – 40' * 35' = 1,400 sf

Original House – 40' * (35' + 5') = 1,600 sf

Total of House = 1,400 + 1,600 = 3,000 sf

Remember: Square footage measurements for taxing purposes always use the OUTSIDE measurements.

What is the per square foot cost of the house if the RCN is $155,555?

$155,555 / 3000 sf = $51.85

Math Problem #33

Square Foot Method

Calculate the RCN of this average quality 1,550 sq ft house using the Marshall/Swift tables provided.

One Story		One & One Half Story		Two Story	
sq ft	$ per sq ft	sq ft	$ per sq ft	sq ft	$ per sq ft
1400	$65.96	1400	$75.70	1400	70.91
1500	$65.14	1500	$74.30	1500	69.96
1600	$64.38	1600	$72.05	1600	69.09

CCM	1.01
LCM	1.03

	Sq. Ft.	Math	Percent	Cost	Math	Int. Cost
High	1600	1600/3100	52%	64.38	64.38*52%	33.23
Low	1500	1500/3100	48%	65.14	65.14*48%	31.52
	3100				1550 =	**64.75**

$100,363 * CCM * LCM =

$100,363 * 1.01 * 1.03 =

$104,407 RCN

$64.75 * 1550 sf = $100,363

Math Problem #34

Cost Index (Factored Historical) Method

Example:

House built 20 years ago for $80,000

Cost index when built was 1.10

Current cost index is 1.40

What is the RCN?

Formula: Current index / prior index = multiplier
Multiplier * Historic Cost = RCN

1.40 / 1.10 = 1.27
1.27 * $80,000 = $101,600

Math Problem #35

Depreciation

- NAC 361.016 – **Depreciation** is a loss in value of improvements or personal property from any cause.
- **Accrued Depreciation** – NAC 361.1073 – the amount of loss in the value of an improvement relative to its RCN as a result of physical deterioration or obsolescence.

Depreciation

- **Physical Deterioration** – a loss in value caused by normal wear and tear
  - **<u>Curable</u>** – Deferred maintenance - the cost of repair is less than the value it adds
    - Breakage, negligent care, painting, weather stripping, window replacement, etc.

  - **<u>Incurable</u>** – the cost of repair exceeds the value it adds
    - Foundation repairs, bearing wall replacement, termite infestation, dry rot

Depreciation

- **Functional obsolescence** – outmoded or unacceptable design
  - Curable – Most people want 3 bedrooms so a home with 2 bedrooms and an office allows for the office space to be converted to a 3rd bedroom – the cost of converting the office costs less than the value it would add to the home

Depreciation

- **Functional obsolescence** – outmoded or unacceptable design
  - Incurable – Most people want two bathrooms so a home with 4 bedrooms and 1 bathroom is outmoded and the cost of installing another bathroom exceeds any increase in value. Other example: small choppy rooms; functional but outdated heating/cooling systems; poor column spacing in a warehouse

Depreciation

- **External obsolescence** – caused by factors external to the property
  - Incurable – land can't be moved.
    - Economic – bad market conditions

    - Locational – constructing a stockyard next to a subdivision

Obsolescence

- NAC 361.116 – an impairment to property resulting in the full cash value of the property being less than its taxable value.

Obsolescence

- NRS 361.227 - Valid methods for determining if obsolescence is warranted:
  - Comparative sales, based on prices actually paid in market transactions
  - Summation of estimated full cash value of land and contributory value of the improvements
  - Capitalization of the fair economic income expectancy or fair economic rent, or an analysis of the discounted cash flow

Age/Life Terms

- Age – Chronological age; year built

Age/Life Terms

- Actual Age – (NAC 361.012 & NRS 361.229) total number of years from the year of the construction to the year of the lien date for the taxes which it affects.

Lien Date – Year Built = Actual Age

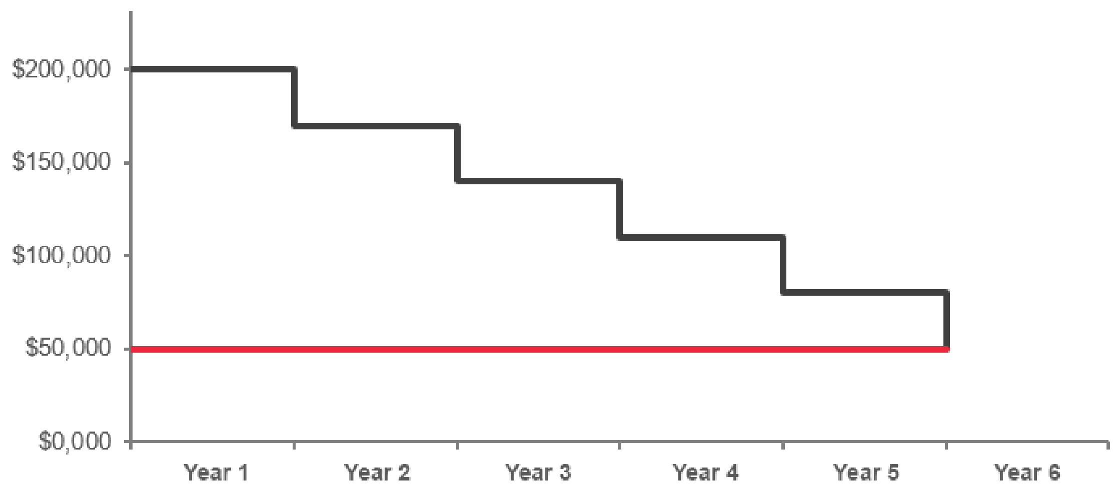
Age/Life Terms

- Economic Life – also called average life, effective life or useful life
- Age indicated by the condition of a building
  - Better than average maintenance – may have effective age less than actual age
  - Inadequate maintenance – may have effective age more than actual age

OR

Age/Life Terms

- Economic Life Depreciation – straight line depreciation with a uniform % of value lost each year over the useful life of the improvement



Age/Life Terms

- Remaining Economic Life – the period of usefulness that a building has remaining as of the effective date of the appraisal.

Estimated Total Economic Life – Estimated Effective Age = Remaining Economic Life

Age/Life Terms

- Effective Age – the difference between economic life and remaining economic life of the structure (how old the home appears to be) - SUBJECTIVE

Economic Life –
Remaining Economic Life =
Effective Age

Adjusted Actual Age

- NRS 361.229 says the actual age of each improvement made on a parcel of land must be adjusted, for the purpose of computing depreciation:
- Addition/Replacement Cost + Cost of Prior Replacements >= 10% of the cost of replacement of the improvement after the work is done
- Reduction = Prior Actual Age * Ratio of the Cost of Addition to the Cost of Replacement of the improvement after the work is done
- Reduction = Prior Actual Age * Ratio of the Square Footage of Additional Floor Area to the total square footage

Age/Life Terms

- Adjusted Actual Age – Weighted Age due to additions/modifications

	Sq Ft	Math	Percent
Original	1	Sq Ft/ Total Sq Ft =	2
Addition		Sq Ft/ Total Sq Ft =	
Total Sq Ft			

Year Built	Math	Interpolation
3	Year Built * Percent =	4
	Year Built * Percent =	

Math	Interpolated Date
Interpolation Original + Interpolation Addition =	5

Age-Life Depreciation

Another term for straight-line depreciation – uniform % of loss over useful life

Formulas:

Total Economic Life = Effective Age + Remaining Economic Life

Age-Life Depreciation = Effective Age (EA) / Total Economic Life

Example: Roof has an effective age of 5 years and total economic life is 25 years.

Age life depreciation = 5/25 or 20%

Math Problem #36

Practice – Accrued Depreciation

What is the accrued depreciation using the following:

Actual Age = 15 years

Effective Age = 10 years

Estimated Remaining Economic Life = 40 years

RCN = $200,000

Formula: Effective Age (EA) + Remaining Economic Life (REL) = Total Economic Life (TEL)

Total Economic Life (TEL) = 10+40 = 50 years

Depreciation = EA / TEL = 10/50 = 20%

Accrued Depreciation = $200,000 (RCN) * 20% = $40,000

Math Problem #37

Practice – Age-Life

In Nevada, what is the assessed value using the following:

Actual age:	30 years
Adjusted actual age:	25 years
Effective Age:	20 years
Replacement cost new:	$285,000
Land Value:	$100,000

Accrued Depreciation:

Adjusted Actual Age * 1.5% = 25 * 1.5 = .375

.375 * RCN = .375 * 285,000 = 106,875

RCNLD:

RCN – Depreciation = 285,000 – 106,875 = 178,125

Add Land Value to get Taxable Value

RCNLD + Land Value = $178,125 + 100,000 = $278,125

Assessed = 35% of Taxable

$278,125 * .35 = $97,344

Math Problem #38

Practice – Accrued Depreciation

Comparable properties sell for $53,250. The subject has a land value of $11,790 and the RCN for its improvements is $55,730. What is the indicated accrued depreciation?

Subject property value:

$11,790 + $55,730 = $67,520

Less Market indicator of value

$67,520 - $53,250 = $14,270 = indicated accrued depreciation

Math Problem #39

Comparative Sales Approach

Steps to Take

1. Identify the appraisal problem.
2. Define the scope of work.
3. Collect and analyze data.
4. Select appropriate units of comparison
5. Make reasonable adjustments to the comparable sales based on the market
6. Reconcile this information with the subject

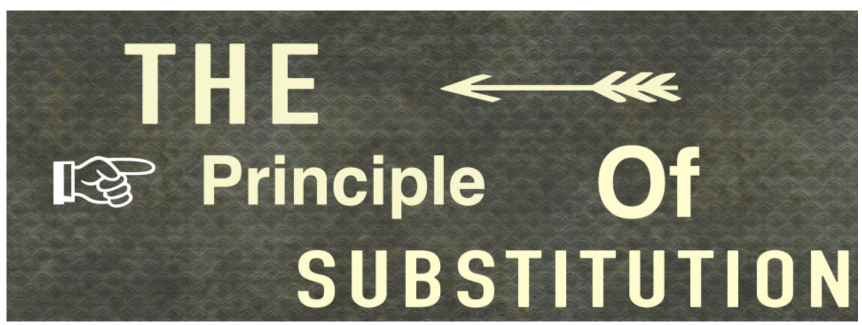
Subject property is compared to recently sold comparable properties.

Comparative Sales Approach

- Supportable: reflects the actions of the marketplace (shows what buyers/sellers are actually doing)
- The interaction of supply and demand factors determines property prices
- Arm's length transaction – buyer does not have a direct relationship with the seller

Comparative Sales Approach

- Estimate value based on sales of similar properties
- Limitations of this approach:
  - Past transactions
  - Requires sufficient data
  - Less reliable when market is volatile
  - Based on Principle of Substitution
    - No commodity has a greater value than that for which a similar commodity can be purchased



Comparative Sales Approach

- Criteria
  - Must be sold on the open market
  - Neither party under duress
  - Reasonable time on the market
  - Buyer/seller are knowledgeable regarding use of property
  - Consideration in cash or equivalent
  - Arm's length transaction

Elements of Value

- **D.U.S.T.**
  - **D**emand – something someone wants
  - **U**tility – satisfies human wants
  - **S**carcity – a property is worth more if it is unique rather than one of many similar properties; may also be unavailable.
  - **T**ransferability – the ability to freely buy, sell, or encumber the property in any way the owner sees fit

Two Types of Value

- Value in use – the value is inherent in the asset itself
- Value in exchange – the asset (property) is only valuable when someone else desires it and is willing to exchange something or pay for it

Elements of Comparison

Use these elements to determine comparable sales (similar to subject property):

- Property rights conveyed
- Financing
- Conditions of Sale
  - Comparable Sales – were buyer/seller well informed
- Marketing Conditions (Time)
  - Sale dates; value affected by other recent market changes
- Location
  - Same neighborhood; account for differences in location
- Physical Characteristics
  - Size, shape, terrain

Typical Units of Comparison

- Residential:
  - Per dwelling unit
  - Per square foot of building
  - Per room
  - Per be
- Multi-Family:
  - Per dwelling unit
  - Per square foot of building
  - Per room
  - GIM/GRM
- Commercial/Industrial:
  - Per Square foot of building
  - GIM/GRM

Adjustment Process

- Method:
  - Research relevant sales data
  - Verify sales
  - Choose a relevant unit of comparison
  - Apply adjustments to the comparable sales **not the subject**
    - Unit of Comparison = Sales Price / Element of Comparison
  - Adjustments may be made on lump sum or percentage basis.
  - Adjustments made based on the item's contributory value
  - Adjustments are usually made for physical characteristics, location or time
    - Time Adjustment Formula: (Now – Then) / Then = % change
    - Monthly Adjustment for Time: % change / # of months
    - Example:
      - Now = $150,000; Then = $129,000; 6 months have elapsed

        (150,000 – 129,000) / 129,000 = 16.28%

        .1628 / 6 = 2.7%
  - Reconcile

Math Problem #40

Example of Sales Comparison

	Subject	Sale #1	Adjust	Sale #2	Adjust	Sale #3	Adjust	Sale #4	Adjust
Sales Price		$120,000		$115,000		$116,000		$113,000	
Finance		Conv.		Conv.		Conv.		Conv.	
Bedroom	3 BR	3 BR		3 BR		2 BR	+$4,000	3 BR	
Construction Material	BRICK	BRICK		FRAME	+$5,000	BRICK		FRAME	+$5,000
Garage	1-CAR	2-CAR	-$2,000	2-CAR	-$2,000	2-CAR	-$2,000	1-CAR	
Net Adjust			-$2,000		+$3,000		+$2,000		+$5,000
Indicated Value			$118,000		$118,000		$118,000		$118,000

Practice

Using the adjustments indicated and assuming the market has continued to rise throughout the period, which sale has the lowest composite adjustment factor? Which sale is most comparable to the subject?

Sale	Time	Location	Size	Condition	Composite Adjustment Factor	Comparability
1	7	-4	1	4	**8**	**16**
2	8	3	-6	-7	**-2**	**24**
3	1	4	3	3	**11**	**11**
4	4	-3	-1	1	**1**	**9**
5	3	-2	-3	-2	**-4**	**10**

Math Problem #41

Practice – Market Rate Adjustment

What is the indicated monthly adjustment for market conditions for the following parcels that sold?

Sale 1 – 6 months ago - $11,000
Sale 2 – current - $13,500
Sale 3 – 3 months ago - $12,500
Sale 4 – 1 year ago - $8,500

Math Problem #42

Step 1 – Green, Step 2 – Red, Step 3 – Purple, Step 4 - Blue

	Sale 1	Sale 2	Sale 3	Sale 4
Months Elapsed	6	0	3	1
Sale Price	$11,000	$13,500	$12,500	$8,500
Price Change	$13,500 - $11,000		$13,500 - $12,500	$13,500 - $8,500
	$2,500		$1,000	$5,000
% Change	$2,500 / $11,000		$1,000 / $12,500	$5,000 / $8,500
	22.727%		8.000%	58.824%
% Change/Month	22.727% / 6		8.000% / 3	58.824% / 1
	3.788%		2.667%	58.824%
Average	(3.788 + 2.667 + 58.824) / 3			
	21.759%			

Income Approach

- Used to value income-producing properties
- Appreciation - Real estate typically appreciates in value over the period of ownership
- Reserves for Replacement – money put aside to pay for a significant capital expenses (major replacements or refurbishments
  - HVAC, roof repair, paving the parking lot, elevator, replace carpet, repainting, etc.

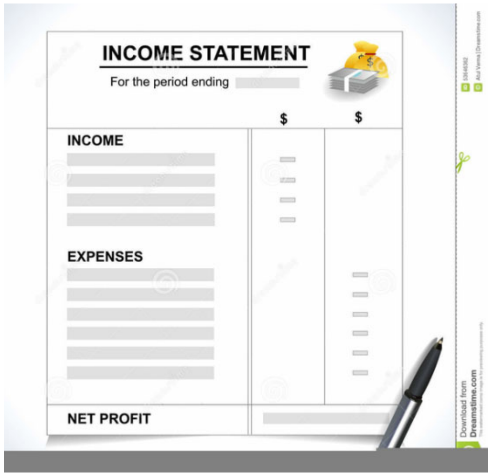


Income Approach – Terms (continued)

- Potential Gross Income (PGI)
  - Annual rent that the property could earn
    - At Current Rates
    - If 100% occupied, 100% of the year
  - Generally based on rental income of the property only … separate from any miscellaneous or other income
- Effective Gross Income (EGI)
  - Formula: EGI = PGI – Vacancy & Collection Loss + Other Income
  - Should be similar to actual income received on income statement
- Net Operating Income (NOI)
  - Formula: NOI = EGI – Normal Operating Expenses and Reserves for Replacement
  - Should be similar to net income on income statement

Income Statement

- Typical Allowable Expenses
  - Salaries
  - Management
  - Advertising
  - Insurance
  - Materials & Supplies
  - Repairs
  - Maintenance
  - Reserves for Replacement
  - Utilities
  - Miscellaneous



Income Statement

- Typical Unallowable Expenses
  - Capital Improvements
  - Debt Service (Interest and Capital)
  - Depreciation
  - Income Taxes / Real Estate Taxes
  - Owner's Business Expenses
  - Donations / Gifts

Income & Expense Statement

	Expense Item	Use as Stated (A)	Pro-Rate (B)	Eliminate (C)
A	Management Fee			
B	Repairs			
C	Miscellaneous			
D	Utilities			
E	Interest on mortgage			
F	Principal on mortgage			
G	New roof			
H	Insurance fire (3-year policy)			
I	Insurance Liability (1-year policy)			
J	janitor's Salary			
K	Painting Exterior			
L	Purchase of 4 new refrigerators			
M	Purchase of 2 new range/ovens			
N	Supplies			
O	Corporate income taxes			
P	Red Cross donation			
Q	Carpet replacement (6 units)			
R	Redecorate 7 apartment units			
S	Real Estate Taxes			
T	Employee's Health Policy (1-year)			

Income Approach

Relationship between what income property earns and what an investor will pay for it. This approach is best used for income producing (multi-family, commercial, industrial) properties.

Based on Principle of Anticipation

Formula:

Potential Gross Income (PGI)
- Vacancy & Collection Loss

= Effective Gross Income (EGI)
- Operating Expenses

= Net Operating Income (NOI)

Please	- PGI
Visit	- V&C
Every	- EGI
Other	- OE
Night	- NOI

Income Approach

A commercial property sold for $1,200,000 It has a PGI of $240,000; vacancy & collection loss is 8% and operating expense including reserves is 40%. What is the overall rate?

PGI	**$240,000**	
- Vac & Coll Loss	**8%**	**$240,000 * 8% = $19,200**
= EGI	**$220,800**	**Or $240,000 - $19,200 = $220,800**
- Operating Expenses	**40%**	**$220,800 * 40% = $88,320**
= NOI	**$132,480**	**Or $220,800 - $88,320 = $132,480**

R = I / V or R = NOI/Sales Price

R = $132,480 / $1,200,00 or R = .1104 or 11%

Math Problem #43

Example

Calculate the NOI for an office complex with the following information:

PGI = $550,000

Vacancy & Collection Loss = 4%

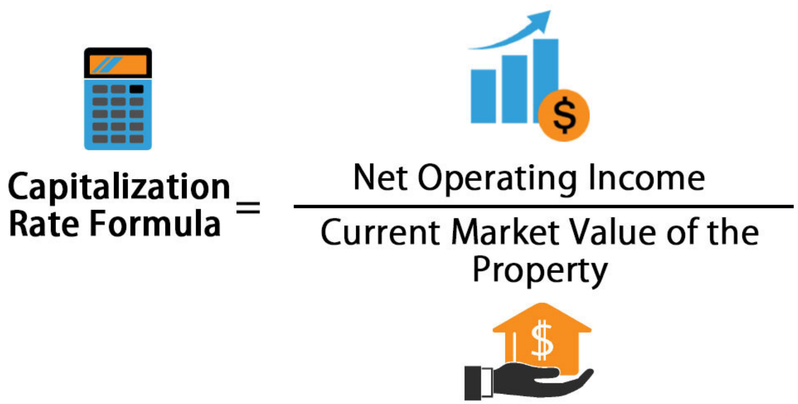
Expense Ratio = 38%

PGI	**$550,000**	
- Vac & Coll Loss	**4%**	**$550,000 * 4% = $22,000**
= EGI	**$528,000**	**Or $550,000 - $22,000 = $528,000**
- Expense Ratio	**38%**	**$528,000 * 38% = $200,640**
= NOI	**$327,360**	**Or $528,000 - $200,640 = $327,360**

Math Problem #44

Methods to Convert Income into an Indication of Value

- Capitalization of Income
  - Direct Capitalization



Methods to Convert Income into an Indication of Value

- Gross Rent Multiplier (GRM)
  - A factor that is typically used to obtain an estimate of value
  - GRM = Sales Price / Annual Gross Rent
  - Example: An investment property is listed at $300,00 and the annual gross rental income is $30,000. What is the GRM?

  $300,000/$30,000 = 10.0 GRM

$$\textbf{Gross Rent Multiplier} = \frac{\textbf{Sales Price}}{\textbf{Annual Rent}}$$

Methods to Convert Income into an Indication of Value

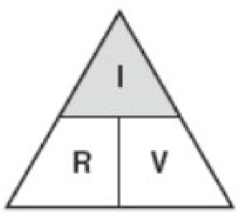
- Gross Income Multiplier (GIM)
  - GIM = Sales Price / Annual Gross Income
  - Example: If a property is valued at $400,000 and it produces $100,000 in total revenue, what is the GIM?

  $400,000 / $100,000 = 4.0 GIM

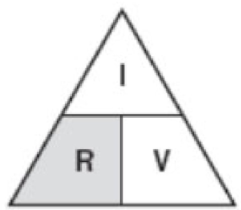
$$\text{Gross Income Multiplier} = \frac{\text{Sales price}}{\text{Annual income}}$$

Direct Capitalization

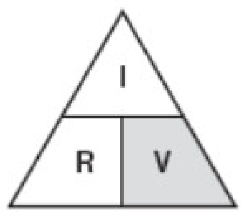
- Converting an estimate of a single year's income into an indication of value.
- Formulas (IRV):



I = R × V



R = I ÷ V



V = I ÷ R

Direct Capitalization Rate

- Built up or combined rate used to convert a property's income to value
- Made up of:
  - Discount Rate
    - Return on the investment
    - Used to convert income into present value
    - Made up of an interest rate and an equity-yield rate
    - Two ways to calculate:
      - Band of Investment
      - Market Comparison
  - Recapture Rate
    - Return of the investment or Capital Recapture
    - Building **Only**
  - Effective Tax Rate
    - Assessment Ratio * Tax Rate

Discount Rate - Band of Investment

Formula:

Overall Rate = % Mortgage * Rate + % Equity * Rate

	% of Investment	Rate	Contribution
Debt			
Equity			
Totals	100%	Overall Rate	

Also known as mortgage and equity.

Uses mortgage constant and equity dividend

Discount Rate - Band of Investment Practice

Typical properties are financed with 75% debt and the mortgage constant is 9.3%. The equity dividend rate is 10%. What is the overall rate?

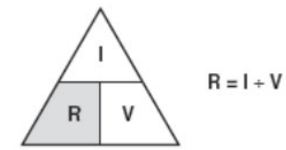
	% of Investment	Rate	Contribution
Debt	**75%**	**9.3%**	**75% * 9.3% = 7%**
Equity	**100% - 75% = 25%**	**10%**	**25% * 10% = 2.5%**
Totals	**100%**		**7% + 2.5% = 9.5% overall rate**

Math Problem #46

Step 1 = Red, Step 2 = Purple, Step 3 = Blue

Discount Rate - Market Comparison

- Use IRV
  - NOI (I) / Sales Price (V) = R (Overall Rate)



- Example:
  - Commercial property sold for $900,000 and has an EGI of $200,000. Operating expenses including reserves are $96,500. What is the overall rate?
  - Formula: Overall Rate = NOI / Sales Price
  - NOI = EGI – Operating Expenses
  - NOI = 200,000 – 96,500 = 103,500
  - Overall Rate = 103,500/900,000 = .115 or 11.5%

Math Problem #47

Recapture Rate

- The recapture rate is the rate of return **OF** a real estate investment.
- Formula:
  - 1 / Remaining Economic Life = Recapture
  - A building originally had a life of 30 years. It is now 12 years old. What is the recapture rate?
    - REL = Actual Age – Effective Age
    - REL = 30-12 = 18
    - 1/18 = .055555 or 5.56%

Math Problem #48

Effective Tax Rate

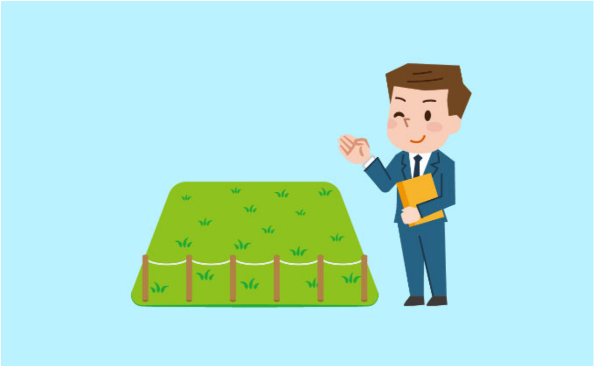
- The ratio between the current tax bill and the property value
  - E = Effective Tax Rate
  - A = Assessment Ratio
  - T = Tax Rate
    - E = A * T
    - A = E/T
    - T = E/A
- The tax rate is 7.5%. The assessment ratio is .35. What is the effective tax rate?
  - 7.5% * .35 = .02625 or 2.625%

ETR

Math Problem #49

Overall Rate

- Blends land and improvements
- Land Valuation Rate includes:
  - Discount Rate (how much interest you want as a rate of return)
  - Effective Tax rate
  - No Recapture Rate (land doesn't depreciate)



Overall Rate

- Building Valuation Rate includes
  - Discount Rate
  - Effective Tax Rate
  - Recapture Rate (buildings depreciate)

GRM

Assume the following:
Sale 1: GRM 4.0
Sale 2: GRM 6.1
Sale 3: GRM 5.7
Subject Property: Potential Gross Income = $75,000
What is the indicated market value of the subject property?

Step1: Find the average GRM from comparable sales
(4.0 + 6.1 + 5.7) / 3 = 5.27
Step 2: Multiply the potential gross income * the GRM
$75,000 * 5.27 = $395,250

Math Problem #45

GRM

Calculate the Gross Rent Multiplier (GRM) for each of these sales:

	Sale Price	Monthly Rent	Ratio	GRM
Sale 1	$157,000	$1,740	**$157,000 / $1,740**	**90.22988506 or 90.2**
Sale 2	$160,000	$1,800	**$160,000 / $1,800**	**88.88888889 or 88.9**
Sale 3	$165,000	$1,776	**$165,000 / $1,776**	**92.90540541 or 92.9**

Math Problem #50

GIM

Math Problem #51

Find the Price Per Unit Per Month for the subject property:

	Subject	Comp 1	Comp 2	Comp 3
Rental Income Per Unit Per Month	$293,000 / 12/ 16 = $1,526.04	$1,200	$1,250	$1,150
# of Units	16	12	18	10
Sale Price	$1,526.04 * 7.928 = $2,136,802	$1,350,000	$1,450,000	$1,200,000
Price Per Unit	$2,136,802 / 16 = $133,550.15	$65,000	$60,000	$63,000
GIM	(7.8125 + 5.3704 + 8.6957) / 3 = 7.2928	$1,350,000 / $172,800 = 7.8125	$1,450,000 / $270,000 = 5.3704	$1,200,000 / $138,000 = 8.6957
Gross Income	$293,000	$1,200*12*12 = $172,800	$1,250*18*12 = $270,000	$1,150*10*12 = $138,000

(Given: black, 1: green, 2: red, 3: blue, 4: purple, 5: pink, 6: orange

Questions?