Indiana Real Estate Brokers
CONTINUING EDUCATION

Real Estate Mathematics: Basic Formulas and Functions & Real Estate Applications

PDH Academy Course Approval #CE21600004 | 4 CE HOURS

PDH Real Estate

COURSE DESCRIPTION:

This 4-hour continuing education course takes a deep dive into the math that supports many of our essential real estate practices. It opens with a review of formulas and functions, then applies them to the more complicated calculations that inform contracts, appraisals, investments, taxation, closings, and more. Key definitions are reviewed throughout.

The learning objectives of this course are as follows:

1. Recall basic mathematical formulas and functions
2. Calculate area using the legal description
3. Calculate commission
4. Calculate goodwill
5. Distinguish between and calculate contract elements
6. Distinguish between and calculate appraisal elements
7. Distinguish between and calculate loan elements
8. Distinguish between and calculate investment elements
9. Calculate tax rates
10. Complete closing calculations

HOW DOES THIS COURSE WORK?

To enhance comprehension, review questions are provided at the end of the course.

A final exam will be administered after the course is completed to check for mastery of the material. If you do not pass the final exam, you can review the course material and retake the exam at no additional cost.

If assistance is needed with this course you can contact PDH Academy at 888-564-9098 or at support@pdhacademy.com.

After completing the course and final exam, we ask that you take our course survey to help us continue to provide high-quality continuing education.

REAL ESTATE MATHEMATICS – Final Exam

1. $\frac{3}{19} + \frac{2}{7}$

a. 5/26
b. 1/12
c. 59/133
d. 6/133

2. $\frac{4}{14} \times \frac{3}{8}$

a. 12/112
b. 32/42
c. 7/22
d. 6/60

3. Convert the following decimal to a percentage: 2.65

a. 0.265%
b. 2.65%
c. 26.5 %
d. 265%

4. Convert the following decimal to a percentage: 0.005

a. 0.005%
b. 0.05%
c. 0.5%
d. 5%

5. Convert the following percentage to a decimal: 90.2%

a. 0.902
b. 9.02
c. 90.2
d. 902

6. Convert the following percentage to a decimal: 5.79%

a. 57.9
b. 5.79
c. 0.579
d. 0.0579

7. Convert the following fraction to a percentage: $\frac{8}{9}$

a. 8%
b. 8.8%
c. 88.8%
d. 888%

8. Convert to a fraction, and reduce, the following percentage: 16%

a. 4/25
b. 16/25
c. 25/16
d. 25/100

9. What is 75% of 280?

a. 190
b. 210
c. 230
d. 250

10. Calculate the area of the following shape: a trapezoid with height of 5' and bases of 6' and 8'

a. 35 SF
b. 45 SF
c. 70 SF
d. 85 SF

11. Calculate the acreage of the following: SW 1/4 of the N 1/2 of the E 1/2 of Section 14

a. 80 acres
b. 60 acres
c. 40 acres
d. 20 acres

12. Calculate the acreage of the following: SE 1/4 of the NW 1/4 of the SE 1/4 of Section 20

a. 40 acres
b. 30 acres
c. 20 acres
d. 10 acres

13. A property is co-brokered by listing broker Schroeder and selling broker Hobson for $425,000. The co-brokerage split is 50-50. Schroeder's agent, Joachim, is on a 65% split schedule. Hobson's selling agent, Wallace, splits 50-50 with her broker. If the total commission rate is 7%, what are the participants' commissions, in the following order? Broker Schroeder; Broker Hobson; Schroeder's agent, Joachim; Hobson's agent, Wallace

a. Schroeder: $5,206.25; Hobson: $7,437.50; Joachim: $9,668.75; Wallace: $7,437.50

b. Schroeder: $7,437.50; Hobson: $9,668.75; Joachim: $7,437.50; Wallace: $5,206.25

c. Schroeder: $7,437.50; Hobson: $5,206.25; Joachim: $7,437.50; Wallace: $9,668.75

d. Schroeder: $9,668.75; Hobson: $7,437.50; Joachim: $5,206.25; Wallace: $7,437.50

14. A prospective purchaser complained to a seller that the selling price had far too much goodwill: $200,000. After all, the assets only totaled $352,000. What was the price?

a. $600,000

b. $552,000

c. $152,000

d. $452,000

15. A seller receives an offer of $674,000 on a property listed at $749,000. How much is the offer as a percent of the listing price?

a. 79%

b. 90%

c. 111%

d. 86%

16. A seller requires a 1.5% deposit on all offers. A buyer wants to offer $312,000 for the property. What must the deposit be?

a. $46,800

b. $31,200

c. $4,680

d. $3,120

17. A tenant's rent is currently $650 per month. This rent is scheduled to increase 5% per year. If we consider the current year the first year, what will the tenant's rent be at the beginning of the third year?

a. $716.63

b. $695.75

c. $682.50

d. $664.33

18. Identify the proper adjustment for the following: the subject has a two-car garage, while the comparable does not. Value of garage is $33,000.

a. -66,000 to comparable

b. +66,000 to comparable

c. -33,000 to comparable

d. +33,000 to comparable

19. Identify the proper adjustment for the following: the subject has 1,500 square feet. The comparable has 1,600 square feet. The value of extra square feet is $200/SF.

a. -20,000 to comparable

b. -2,000 to comparable

c. -200 to comparable

d. -100 to comparable

20. A property grosses $450,000, nets 350,000, and has a capitalization rate of 9%. Prevailing GRMs are 8. What is the property value using the GRM?

a. $3,888,888

b. $3,600,000

c. $3,400,000

d. $3,222,222

21. A property grosses $450,000, nets 350,000, and has a capitalization rate of 9%. Prevailing GRMs are 8. What is the property value using net income capitalization?

a. $3,888,888

b. $3,600,000

c. $3,400,000

d. $3,222,222

22. Answer the following: a $250,000 loan carries a 7% rate. What is the monthly interest payment?

a. $987

b. $1,238

c. $1,396

d. $1,458

23. Answer the following: a $300,000 loan has monthly payments of $2,000. What is its annual interest rate?

a. 8%

b. 9%

c. 10%

d. 11%

24. Answer the following: a 12% loan has annual payments of $15,000. What is the loan amount?

a. $100,000

b. $115,000

c. $125,000

d. $140,000

25. Answer the following: a lender requires $90,000 down on a $400,000 property. Calculate the lender's required LTV.

a. 22.5%

b. 55.5%

c. 77.5%

d. 99.5%

26. Answer the following: a property is valued at $600,000. The lender will allow a maximum LTV of 75%. How much can the buyer borrow on the property?

a. $15,000

b. $150,000

c. $45,000

d. $450,000

27. A borrower earns $4,000/month and pays $600/month in debt repayments. A conventional lender requires a 26% income ratio, and an FHA lender requires 31%. What monthly PITI can this person afford based on the income ratio?

a. Conventional: $840/month;
FHA: $1,120/month

b. Conventional: $1,040/month;
FHA: $1,240/month

c. Conventional: $1,240/month;
FHA: $1,500/month

d. Conventional: $1,440/month;
FHA: $1,740/month

28. A borrower earns $4,000/month and makes monthly debt payments of $600. What monthly payment for housing can this person afford based on the debt ratio?

a. Conventional: $840;
FHA: $1,120

b. Conventional: $1,040;
FHA: $1,240

c. Conventional: $1,240/month;
FHA: $1,500/month

d. Conventional: $1,440/month;
FHA: $1,740/month

29. A lender is charging 2.75 points on a $240,000 loan. How much must the borrower pay for points?

a. $6,600

b. $6,300

c. $6,000

d. $5,700

30. A property is purchased for $360,000. A year later it is sold for $410,000. What is the amount of appreciation, and what is the appreciation rate?

a. $50,000; 12.2%

b. $50,000; 13.89%

c. $50,000; 86.11%

d. $50,000; 87.8%

31. A property is purchased for $450,000 with a $75,000 down payment. Five years later the property is worth $540,000, and the loan balance has dropped $12,500. What is the owner's new equity?

a. $277,500

b. $233,500

c. $199,500

d. $177,500

32. An apartment building has a potential income of $300,000 and vacancy of $12,000. Its bills total $128,000, and $12,000 has been reserved for repairs. Payments on the loan total $88,000. What is the property's pre-tax cash flow?

a. $90,000

b. $80,000

c. $70,000

d. $60,000

33. The property from the previous problem has annual cost recovery of $28,000. Out of the annual debt service, $8,000 is non-interest principal payback. The property owner's tax rate is 28%. What is the property's annual tax?

a. $14,560

b. $13,840

c. $12,044

d. $11,200

34. A property is purchased for $400,000. Improvements account for 80% of the value. Given a 39-year depreciation term, what is the annual depreciation expense?

a. $821

b. $8,205

c. $10,256

d. $1,053

35. A principal residence is bought for $360,000. A new tile roof is added, costing $15,000. Five years later the home sells for $440,000, and the closing costs $35,000. What is the homeowner's capital gain?

a. $60,000

b. $50,000

c. $40,000

d. $30,000

36. A multi-unit rental property was bought four years ago for $1,200,000 with a $200,000 down payment. The property now rents for $8,500 per month. Expenses and debt service are $1,000/month and $6,500/month respectively. An appraiser estimates the property's current value at $1,450,000. The investor pays off her principal balance at a rate of $5,000 per year. Compute the following investment returns for the investor: ROI = ___; C on C = ___; ROE = ___.

a. ROI = 7.5%; C on C = 2.5%; ROE = 2.66%

b. ROI = 8.5%; C on C = 2.5%; ROE = 2.66%

c. ROI = 7.5%; C on C = 6.0%; ROE = 2.55%

d. ROI = 8.5%; C on C = 2.5%; ROE = 2.55%

37. Barrington has an annual budget of $25,000,000 to be paid by property taxes. Assessed valuations are $300,000,000, and exemptions total $25,000,000. What must the tax rate be to finance the budget?

a. 72.4 mils, or 7.24%

b. 83.3 mills, or 8.33%

c. 90.9 mills, or 9.09%

d. 98.1 mils, or 9.81%

38. A homeowner's assessed valuation is $225,000. The homestead exemption is $25,000. Tax rates for the property are 8 mills for schools; 3 mills for the city; 2.5 mills for the county; and.5 mills for the local community college. What is the homeowner's tax bill?

a. $2,800

b. $2,940

c. $3,150

d. $3,280

39. A street beautification project is to cost $25,000. The project affects 20 properties having a total of 2,000 front feet. One owner's lot has 75 front feet. What will this owner's special assessment be?

a. $468.75

b. $624.56

c. $802.75

d. $937.50

40. A rental property closes on March 15th. Proratable income and expenses are: rental income of $1,800/month, received in advance by seller, March 1; annual taxes of $4,800/year, to be paid in arrears by buyer, January 1 of the year after sale. The day of closing is the seller's. February has 28 days. Prorate the items using the 365-day method, and assign debits and credits: RENT: seller's share = ___; buyer's share = ___; debit seller/credit buyer OR debit buyer/credit seller ___; TAXES: seller's share = ___; buyer's share = ___; debit seller/credit buyer OR debit buyer/credit seller ___.

a. RENT: seller's share = $822.47; buyer's share = $965.33; debit seller/credit buyer $965.33; TAXES: seller's share $912.19; buyer's share $4,228.11; debit seller/credit buyer $912.19

b. RENT: seller's share = $870.96; buyer's share = $929.04; debit seller/credit buyer $929.04; TAXES: seller's share $973.16; buyer's share $3,826.84; debit seller/credit buyer $973.16

c. RENT: seller's share = $822.47; buyer's share = $965.33; debit buyer/credit seller $929.04; TAXES: seller's share $912.19; buyer's share $4,228.11; debit buyer/credit seller $973.16

d. RENT: seller's share = $870.96; buyer's share = $929.04; debit buyer/credit seller $929.04; TAXES: seller's share $973.16; buyer's share $3,826.84; debit buyer/credit seller $973.16

Section 1: Basic Formulas and Functions

Adding and multiplying fractions
Converting decimals and percentages
Converting fractions and percentages
Multiplying percentages
Calculating area

ADDING AND MULTIPLYING FRACTIONS

Adding

Formulas:

Same denominator:

$$\frac{a}{c} + \frac{b}{c} = \frac{a + b}{c}$$

Different denominator:

$$\frac{a}{c} + \frac{b}{d} = \frac{ad + b}{cd}$$

Examples:

$$\frac{2}{5} + \frac{6}{5} = \frac{8}{5}$$

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

Multiplying

Formulas:

$$\frac{a}{c} \times \frac{b}{d} = \frac{ab}{cd}$$

Examples:

$$\frac{4}{9} \times \frac{2}{3} = \frac{8}{27}$$

CONVERTING DECIMALS AND PERCENTAGES

Converting a decimal to a percent

Formulas: (decimal number) x 100 = percent number

Examples:

.473 x 100 = 47.3%
3.456 x 100 = 345.6%
.0042 x 100 = .42%

Converting a percent to a decimal

Formulas:

$$\frac{\textit{percent number}}{100} = \textit{decimal number}$$

Examples:

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

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

CONVERTING FRACTIONS AND PERCENTAGES

Converting a fraction to a percent

Formulas:

(1) $\frac{a}{b}$ = a divided by b = decimal number

(2) decimal number x 100 = percent number

Examples:

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

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

Converting a percent to a fraction and reducing it

Formulas:

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

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

Examples:

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

MULTIPLYING PERCENTAGES

Formulas:

(1) convert percent to decimal by dividing by 100

(2) whole amount x decimal = partial amount

Example:

33% of 400

(1) 33% divided by 100 = .33

(2) 400 x .33 = 132

CALCULATING AREA

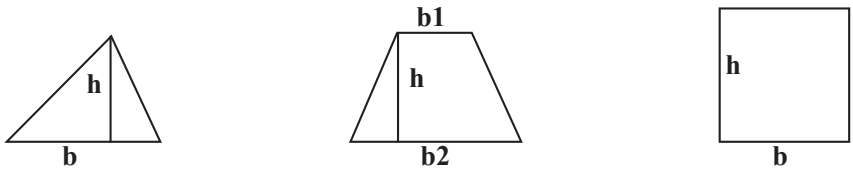
To find the area of an irregular shape, try dividing it into triangles, rectangles, squares or trapezoids and calculate the areas of those parts; the area of the whole shape is then the sum of the areas of all of its subparts.

Base and height

1. Formulas for area of three- and four-sided shapes use a product of base and height. In the formulas, *a* represents area, *b* represents base, *h* represents height, *SF* represents square feet.

2. The base of a triangle, square, or rectangle may be any side; a trapezoid has two bases, its two parallel sides.

3. The height of a triangle is the length of a perpendicular line from the base to the triangle's opposite point. Height in a square, rectangle or trapezoid is the length of a line which is perpendicular to the base line(s).

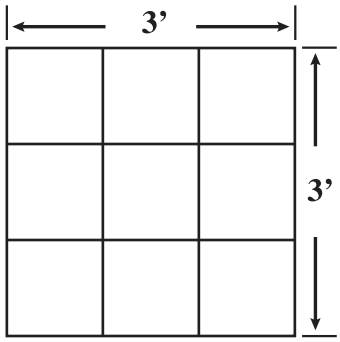


Triangle Trapezoid Rectangle

Area of a square or rectangle

1. **Formula:** area (a) = base (b) x height (h) $a = b \times h$

2. **Example:** A square measures 3 feet on each side.

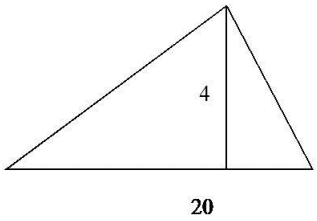


Its area is: 3 x 3 = 9 SF

Area of a triangle

1. **Formula:** $a = \frac{b \times h}{2}$

2. **Example:** A triangle has a 20' base and a 4' height.

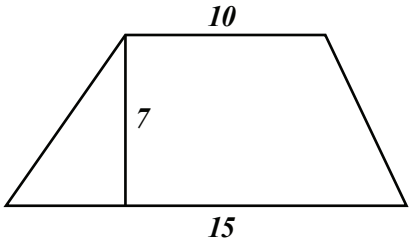


Its area is: $a = \frac{20 \times 4}{2} = 40\ SF$

Area of a trapezoid

1. **Formula:** $a = \frac{a\ (b1 + b2)}{2}$

2. **Example:** A trapezoid's two bases are 10' and 15', and its height is 7'.



Its area is: $a = \frac{7\ (10 + 15)}{2} = 87.5\ SF$

Section 2: Real Estate Applications

Legal descriptions
Listing agreements
Brokerage business
Sales contracts
Appraisal
Finance
Investments
Taxation
Closings

LEGAL DESCRIPTIONS

Key Terms

Benchmark
A registered marker denoting an official elevation above sea level; used by surveyors to identify other elevations in the area.

Datum
A standard elevation reference point used by surveyors to measure elevations of property in an area.

Landmark
A fixed reference point, which may be natural and artificial. Natural landmarks include trees, rocks, rivers, and lakes. Artificial landmarks are typically surveyor stakes.

Legal description
A legal description of real property is one which accurately locates and identifies the boundaries of the subject parcel to a degree acceptable by courts of law in the state where the property is located.

The general criterion for a legal description is that it alone provides sufficient data for a surveyor to locate the parcel. A legal description identifies the property as unique and distinct from all other properties.

Legal description provides accuracy and consistency over time. Systems of legal description, in theory, facilitate transfers of ownership and prevent boundary disputes and problems with chain of title.

A legal description is required for:

- public recording
- creating a valid deed of conveyance or lease
- completing mortgage documents
- executing and recording other legal documents

In addition, a legal description provides a basis for court rulings on encroachments and easements.

The three accepted methods of legally describing parcels of real estate are:

- metes and bounds
- rectangular survey system, or government survey method
- recorded plat method, or lot and block method

Lot and block
A method for legally describing property in a subdivision where lots are identified by block and number. A recorded metes and bounds or rectangular survey description of the subdivision underlies the lot and block system.

Meridian
A north-south, longitudinal line used in the rectangular survey system of legal descriptions. The "principal meridian" is the single designated meridian for identifying townships in the principal meridian's geographical jurisdiction.

Metes and bounds
A method of legally describing property which utilizes physical boundary markers and compass directions for describing the perimeter boundaries of a parcel.

Monument
A fixed, artificial or natural landmark used as a reference point in a metes and bounds legal description.

Parallel
An east-west, latitudinal line used in the rectangular survey system of legal descriptions. The "base parallel," or "base line," is designated in relation to a principal meridian for purposes of identifying townships.

Plat of survey
The survey data taken under the lot and block system.

Point of beginning (POB)
The origination and termination point in a metes and bounds legal description.

Range
A north-south area bounded by consecutive meridians.

Rectangular survey
A method of legally describing real property which uses longitude and latitude lines to identify ranges, tiers, and townships. Also called government survey system.

Section
An area defined by the rectangular survey system and consisting of 1/36th of a township, or one square mile.

Tier
An area between consecutive parallels, as defined in the rectangular survey system.

Township
An area six miles square, bounded by two consecutive parallels and two consecutive meridians in the rectangular survey system. Contains 36 sections.

Key Concepts

METHODS OF LEGAL DESCRIPTION

- metes and bounds; rectangular survey system or government survey; recorded plat or lot and block
- legal description is sufficiently accurate, acceptable in court of law; facilitates transfers; avoids disputes; used in legal contracts

METES AND BOUNDS

- describes property perimeter by landmarks, monuments, distances, angles
- from point of beginning (POB), describes perimeter and returns to POB; usable within rectangular survey system

RECTANGULAR SURVEY SYSTEM

The survey grid

- meridians: north-south lines six miles apart
- parallels: east-west lines six miles apart
- ranges: north-south strips of area between meridians; tiers: east-west strips of area between parallels; townships: the area representing the intersection of a range and a tier, consisting of six-mile by six-mile squares of land

Sections of a township

- 36 sections per township, each one-mile square (1 mile on each side)

Fractions of a section

- 1 section = 640 acres; fractions of sections described by size and location within progressively larger quarters of section

Converting section fractions to acres

- formula: multiply denominators of section fractions; divide product into 640

RECORDED PLAT METHOD

- or lot and block system; used in surveyed subdivisions

Subdivision plat map

- surveyed plat of subdivided tract; legal descriptor if approved and recorded

Description format

- lots within subdivision are identified by lot reference and block reference: "Lot 7 Block B of the Grand Oaks Subdivision"

DESCRIBING ELEVATION

- datum: a standard elevation reference point;
  benchmark: elevation marker officially surveyed and registered

Practical Application

Linear measures

(cm = centimeter; m = meter; km = kilometer)

1 inch	=	1/12 foot	=	1/36 yard
1 foot	=	12 inches	=	1/3 yard
1 yard	=	36 inches	=	3 feet
1 rod	=	16.5 feet	=	1/320 mile

Area measures

1 mile = 5280 feet = 1760 yards = 320 rods

1 centimeter = 1/100th m

1 meter = 100 cm = 1/1000th km

1 kilometer = 1,000 m

1 square inch = 1/144th square foot

1 square foot = 1/9th square yard

1 square yard = 9 square feet

1 acre = 1/640 sq. mi = 43,560 SF = 208.71 ft x 208.71 ft

1 square mile = 640 acres = 1 section = 1/36 township

1 section = mile x 1 mile = 640 acres = 1/36 township

1 township = 6 mi x 6 mi = 36 sq. mi. = 36 sections

Metric conversions

(cm = centimeter; m = meter; km = kilometer)

1 inch = 2.54 cm

1 foot = 30.48 cm = .3048 m

1 yard = 91.44 cm = .9144 m

1 mile = 1609.3 m = 1.60 km

1 centimeter = .3937 inch

1 meter = 39.37 inches = 3.28 feet = 1.094 yards

1 kilometer = 3,281.5 feet = .621 mile

Fractions of sections, acres, and linear dimensions

Fraction	# Acres	Feet X Feet
1 section	640 acres	5280 X 5280
1/2 section	320 acres	5280 X 2640
1/4 section	160 acres	2640 X 2640
1/8 section	80 acres	2640 X 1320
1/16 section	40 acres	1320 X 1320
1/32 section	20 acres	660 X 1320
1/64 section	10 acres	660 X 660

Calculating area from the legal description

1. **Formula:**
   (1) First multiply all the denominators of the fractions in the legal description together

   (2) Then divide 640 by the resulting product.

2. **Examples:**
   N 1/2 of the SW 1/4 of Section 6:

$$\frac{640}{(2 \times 4)} = \frac{640}{8} = 80 \text{ acres}$$

W 1/2 of the NW 1/4 of the NE 1/4 of Section 8

$$\frac{640}{(2 \times 4 \times 4)} = \frac{640}{32} = 20 \text{ acres}$$

LISTING AGREEMENTS

Key Terms

Buyer and tenant representation
Buyer and tenant agency agreements create a fiduciary relationship with the buyer or tenant just as seller listings create a fiduciary relationship with the seller. Generally, buyer and tenant representation agreements are subject to the same laws and regulations as those applying to owner listings.

Due diligence
Due diligence in the listing context refers to verifying the accuracy of the statements in the listing regarding the property, the owner, and the owner's representations. Especially important facts for a broker or agent to verify are:

- the property condition
- ownership status
- the client's authority to act

Failure to perform a reasonable degree of due diligence may increase an agent's exposure to liability in the event that the property is not as represented or that the client cannot perform as promised.

Exclusive agency
A listing agreement which pays the listing broker a commission if anyone other than the property owner procures a customer.

Exclusive right
A listing agreement which pays the listing broker a commission if anyone at all procures a customer.

Listing agreement
A listing agreement, the document that puts an agent or broker in business, is a legally enforceable real estate agency agreement between a real estate broker and a client, authorizing the broker to perform a stated service for compensation. The unique characteristic of a listing agreement is that it is governed both by agency law and by contract law.

Multiple listing
A multiple listing is not a distinct listing contract but rather a provision in an exclusive listing authorizing the broker to place the listing into a multiple listing service. A multiple listing service is an organization of member brokers who agree to cooperate in the sale of properties listed by other brokers in exchange for a share of the broker's resulting commission.

Net listing
A listing which states a minimum sale or lease price the owner will accept, with any excess going to the broker as a commission. Professionally discouraged, if not illegal.

Open listing
A non-exclusive listing which pays an agent a commission only if the agent is procuring cause of a ready, willing, and able customer.

Procuring cause
A party who was first to obtain a ready, willing, and able customer, or a party who expended the effort to induce the customer to complete the transaction.

Key Concepts

REVIEW OF LEGAL FOUNDATIONS

- listing: broker's enforceable contract of employment with client establishing special agency relationship to procure a customer

Agency law

- parties: listing broker and client; broker's subagents; customers and prospects
- fiduciary duties: loyalty; obedience; disclosure; care; diligence; accounting
- scope of authority: listings are special or limited agency, not general agency agreements; broker may not contract for client unless specifically authorized; clients liable only for broker's acts within scope of authority

Contract law

- listings are unilateral contracts; listing must be valid to be enforceable; legal form: oral listings are valid and enforceable except, in many states, exclusive right-to-sell listings which must be written to be enforceable
- listings are not assignable since they are personal service contracts

TYPES OF LISTING AGREEMENT

- owner listing: authorization to sell or lease; buyer or tenant listing: authorization to represent buyer or tenant

Exclusive right-to-sell (or lease)

- most prevalent; given to one broker; must usually be written; must expire; broker gets commission if property transfers during period

Exclusive agency

- exclusive excepting owner; oral or written; must expire; broker gets commission unless owner sells

Open listing

- non-exclusive; oral or written; no stated expiration; procuring cause gets commission; no commission if client procures customer

Net listing

- all sale proceeds above a seller's minimum price go to the broker; discouraged, if not illegal

Buyer and tenant agency agreements

- open or exclusive listings with buyers or tenants to represent their interests
- compensation in form stipulated by agreement; may be paid by seller or landlord at closing; payable if buyer defaults; agent has fiduciary and disclosure duties

Transaction broker agreements

- non-agency; no fiduciary duties; agent does not work in the interests of or for the benefit of either party

Multiple listing

- listing placed in MLS; owners consent to rules and provisions of MLS

FULFILLMENT AND TERMINATION

Agent's performance

- based on results: find ready willing and able customer or effect a sale; may perform only authorized tasks to achieve result; must verify owner and property data; may delegate duties to salespeople and other brokers

Compensation

- negotiated; where disputed, procuring cause is owed commission

Causes for termination

- performance; infeasibility; mutual agreement; revocation; abandonment; breach; expiration; invalidity; incapacitation or death; involuntary transfer; destruction of property

Revoking a listing

- clients always have power to revoke during period, but may incur liability for commission or damages

LISTING AGREEMENT CLAUSES

Exclusive right-to-sell clauses

- minimal requirements: broker's and owners' names; address and/or legal description; listing price; expiration date; agent's duties; compensation terms; authority granted; agency and non-agency disclosures: seller's representations and condition disclosures

Exclusive buyer agency clauses

- minimal requirements virtually identical to exclusive right-to-sell; distinguishing features: buyer's representation of exclusivity; agent compensation; buyer's acknowledgment of other buyers

Transaction broker clauses

- may be exclusive or non-exclusive; typical principle provisions: identification of parties and property; agent's authorized activity; declaration of non-agency; broker's duties; buyer's acknowledgment of other buyers; compensation; buyer or seller duties; expiration date

Practical Application

Co-brokerage commission

1. **Formula:**
   sale price x commission rate = total commission

   total commission x split rate = co-brokerage commission

2. **Example:**
   A house sells for $600,000. The commission is 6%, and the co-brokerage split is 50-50.

   $600,000 x 6% = $36,000 total commission x 50% = $18,000 co-broker's commission

Agent's commission

1. **Formula:**
   broker's commission x agent's split rate = agent's commission

2. **Example:**
   Assume an $18,000 broker's commission and a 60% - 40% agent-broker split rate.

   $18,000 x .6 = $10,800 agent's commission ($7,200 to broker)

BROKERAGE BUSINESS

Key Terms

Anti-trust laws
Legislation aimed at preventing unfair trade practices and monopoly, including collusion, price fixing, and allocation of markets.

Brokerage
The business of procuring customers on behalf of clients for the purpose of completing a real estate transaction.

Business brokerage
The brokerage of a business enterprise in addition to any real property it may own or lease.

Co-brokerage
A brokerage practice where agents and brokers outside of the listing broker's agency assist as subagents in procuring a customer in exchange for portions of the commission.

Collusion
An unlawful agreement between competitors to monopolize a market, disadvantage other competitors, or otherwise undertake activities in violation of fair trade laws.

Commingling
The act of mixing the broker's personal or business funds with escrow funds. A broader definition of commingling includes the failure to deposit earnest money into escrow in a timely manner. In most states, commingling funds constitutes grounds for license suspension or revocation.

Commission
A professional service fee charged for the purchase or sale of a home. The fee covers the successful transfer of real property from one party to another. Most commonly, the fee is a pre-negotiated percentage of the purchase price.

Conversion
The act of misappropriating escrow funds for the broker's business or personal use. More serious than mere commingling, conversion is effectively an act of theft: using monies which do not belong to the broker. Conversion carries serious consequences, including license revocation.

Employee
A sales agent may be an employee. The broker is responsible and liable for the sales agent's actions, and has greater control over the actions of an employee. Specifically:

- a broker can impose a sales methodology. In addition, a broker can enforce all office policies, including hours, meeting attendance, and telephone coverage.
- a broker must withhold income taxes and pay unemployment compensation tax on behalf of an employee
- an employee may receive the benefits enjoyed by the broker's non-selling employees

Goodwill
An intangible business asset valued at the difference between the sale price and the value of all other assets of the business.

Independent contractor
A sales agent may be an independent contractor (IC). The broker is responsible and liable for the sales agent's actions, and generally, a broker has limited control over the actions of a contractor. Specifically:

- a broker can require performance results, but is limited in demanding how a contractor performs the work. For example, a broker may not prescribe selling methods, meeting attendance, or office hours.
- an IC is responsible for income and social security taxes; the broker does not withhold taxes
- a broker cannot provide an IC with employee benefits such as health insurance or pension plans

Market allocation
The practice of colluding to restrict competitive activity in portions of a market in exchange for a reciprocal restriction from a competitor: "We won't compete against you here if you won't compete against us there."

Multiple listing service (MLS)
An organization of brokers who agree to cooperate in marketing the pooled listings of all members.

Price fixing
An act of collusion where competitors agree to establish prices at certain levels to the detriment of customers or other competitors.

Prospecting
Any activity designed to generate listing prospects: parties who intend to sell or lease property and who have not yet committed to a broker. Prospecting activities include mailing newsletters and flyers, selling directly and person-to-person, advertising, and selling indirectly via community involvement.

Securities
The Federal Securities Act of 1933 defined participation in a limited partnership as a security, since investors expect to make a profit from a common enterprise without direct control over the marketing and managing of the investment.

Key Concepts

FUNCTION AND ORGANIZATION

The core activity of brokerage

- procuring buyer, seller, tenant, or leased property for a client, often with the help of other brokers and a multiple listing service
- skills: listing, marketing, facilitating, managing information
- Multiple Listing Service: network of brokers who share listings

Who may legally broker real estate?

- yes: sole proprietorship, for-profit corp., general or limited partnership, joint venture. no: non-profit corp., business trust, cooperative association

Types of brokerage organization

- independents; franchises; agencies by property type, by transaction type, and by client type; limited and full service agencies

THE BROKER-SALESPERSON RELATIONSHIP

Legal relationships

- salesperson is agent, fiduciary of broker; acts in broker's name; subagent of client
- may not: have two employers; be paid by other parties; bind clients contractually

Salesperson's employment status

- may be employee or contractor; relationship defined by agreement; assistant may be licensed or unlicensed; if licensed, supervised and paid by employing broker

Obligations and responsibilities

- agent to broker: obtain & sell listings; follow policies and employment provisions; promote ethics and broker's reputation
- broker to agent: provide data, office support, compensation, training; uphold ethics, policies, and employment agreement

Agent compensation

- commissions per schedule after splits with cooperating brokers

OPERATING A REAL ESTATE BROKERAGE

Obtaining listings

- generate prospects; develop price range; complete listing presentation; negotiate execute and agreement

Marketing listings

- develop marketing plan; sell and qualify prospective buyers; complete necessary disclosures; obtain offers

Pre-closing activities

- facilitate fulfillment of contract contingencies and provisions
- no commingling or conversion of escrow funds

Communications and technology

- marketing techniques using technology: broker cooperation via MLS and competitors' websites; email and texting; social media websites; smartphone communication capabilities; all must be used carefully and in conformity with advertising rules and other laws

Managing information

- property data; buyer and tenant files; market data files

Policy manual

- written procedures and policies on all aspects of the business to ensure smooth, consistent operations

Advertisement regulations

- no misleading ads; must contain broker's ID; broker responsible for content; no blind ads

Anti-trust laws

- Sherman Act and Clayton Act pioneered antitrust laws to prohibit unfair trade practices, trade restraints, and monopolies
- illegal to collude, disadvantage competitors; fix prices; allocate markets; force tie-ins

BUSINESS BROKERAGE

- sale of existing business and its real estate; opportunity and enterprise brokerage

Business brokerage vs. real estate brokerage

- special skills: transaction knowledge; accounting; determining the price

Transaction knowledge

- types of sale: asset sale and stock sale
- documents: sale contract; real estate sale contract or assignment; no-compete agreement; consulting agreement

Accounting

- income, expenses, and profit
- balance sheet: assets, liabilities, net worth
- assets: tangible and intangible
- goodwill: intangible asset--difference between price & other assets

Determining a price

- reconciliation of income, cost, and market data approaches; influenced by risk and stability of future income

Business brokerage regulation

- may need securities license; must comply with Bulk Sales law

SYNDICATIONS AND SECURITIES BROKERAGE

Syndicating real estate

- pooling capital and expertise to profit from property investment
- syndication is a security; investor may profit without management

Securities licensing

- must be FINRA-licensed to sell DPP's (syndications); Limited Principal License to own; Limited Representative License to sell

Securities registration

- must disclose; must register with SEC if not exempt; DPP exempt if within state or offered unadvertised and limited to 35 investors

Practical Application

Goodwill calculation

1. **Formula:**
   Goodwill = Price - Value of assets

2. **Example:**
   A seller wants $1 million for a business. Assets in the business, including inventory, furniture, equipment, leasehold improvements, and working capital, have a total value of $750,000. The goodwill is: $1,000,000 - 750,000 = $250,000 goodwill

SALES CONTRACTS

Key Terms

Contingencies
Conditions that must be satisfied for a contract to be binding and enforceable.

Contract for deed
A financial contract where a seller retains legal title to a property and gives the buyer equitable title and possession over a period of time. During the contract period, the seller finances all or part of the purchase price. If the buyer makes timely payments and abides by all contract provisions, the seller conveys legal title at the end of the contract period. A contract for deed is also called a *land contract,* an *installment sale,* a *conditional sales contract,* and an *agreement for deed*.

Contract for sale
A real estate sale contract is a binding and enforceable agreement wherein a buyer, the vendee, agrees to buy an identified parcel of real estate, and a seller, the vendor, agrees to sell it under certain terms and conditions. It is the document that is at the center of the transaction. Other names for the sale contract are *agreement of sale, contract for purchase, contract of purchase and sale,* and *earnest money contract*.

Default
A sale contract is bilateral, since both parties promise to perform. As a result, either party may default by failing to perform. A default clause identifies remedies for default. Generally, a buyer may sue for damages, specific performance, or cancellation. A seller may do likewise or claim the earnest money as liquidated damages.

Equitable interest
Under an option-to-buy contract, the optionee enjoys an equitable interest in the property because the option creates the right to obtain legal title. However, the option does not in itself convey an interest in real property, only a right to do something governed by contract law.

Escrow
1. A trust or impound account used for the proper handling of funds and documents in the closing of a real property transaction. 2. An account that a lender requires a borrower to establish to ensure that adequate funds will be available for payment of taxes and insurance on a mortgaged property.

Option-to-buy contract
An option-to-buy is an enforceable contract in which a potential seller, the optionor, grants a potential buyer, the optionee, the right to purchase a property before a stated time for a stated price and terms. In exchange for the right of option, the optionee pays the optionor valuable consideration. An option-to-buy places the optionee under no obligation to purchase the property. However, the seller must perform under the terms of the contract if the buyer exercises the option. An option is thus a unilateral agreement. Exercise of the option creates a bilateral sale contract where both parties are bound to perform. An unused option terminates at the expiration date.

Vendee
A buyer.

Vendor
A seller.

Key Concepts

CONTRACT FOR SALE

Legal characteristics
- binding, bilateral contract for purchase and sale; enforceable; executory, or to be fulfilled; expires upon closing; must be in writing; contain valuable consideration; identify property; be signed by all; be a valid contract

Contract creation
- by unqualified acceptance of an offer; gives buyer equitable title, power to force specific performance

Earnest money escrow
- secures contract validity and buyer's equitable interest; varies in amount; deposit controlled by disinterested party who must act according to escrow instructions

Contract contingencies
- conditions that must be met for the contract to be enforceable

Default

- buyer may sue for cancellation and damages or for specific performance; seller may claim deposit as liquidated damages, or may sue for cancellation, other damages, or for specific performance

SALE CONTRACT PROVISIONS

Primary provisions

- parties, consideration, legal description, price and terms, loan approval, earnest money, escrow, closing and possession dates, conveyed interest, type of deed, title evidence, property condition warranty, closing costs, damage and destruction, default, broker's representation, commission, seller's representations

Secondary provisions

- inspections, owner's association disclosure, survey, environmental hazards, compliance with laws, due-on-sale, seller financing disclosure, rental property tenant's rights, FHA or VA financing condition, flood plain and flood insurance, condominium assessments, foreign seller withholding, tax-deferred exchange, merger of agreements, notices, time of the essence, fax transmission, survival, dispute resolution, addenda

THE OPTION-TO-BUY CONTRACT

- optionor gives option to optionee; unilateral contract: seller must perform; buyer need not; if option exercised, option becomes bilateral sale contract

Contract requirements

- must include: non-refundable consideration for the option right; price and terms of the sale; option period expiration date; legal description; must be in writing and meet contract validity requirements

Common clause provisions

- special provisions: how to exercise option; terms of option money forfeiture; how option money will be applied to purchase price

Legal aspects

- creates equitable interest; is assignable; should be recorded

CONTRACT FOR DEED

- purchase price is paid over time in installments; seller retains title; buyer takes possession; at end of period, buyer pays balance of price, gets legal title

Interests and rights

- seller may encumber or assign interest; remains liable for underlying mortgage
- buyer may use, possess, profit; must make periodic payments, maintain the property, and purchase at end of term

Default and recourse

- if seller defaults, buyer may sue for cancellation and damages or specific performance; seller's default remedies vary by area; may sue for specific performance or damages, or may need to foreclose

Practical Application

"Percentage of listing price" calculation

1. **Formula:**
   Percentage of listing price = offer divided by listing price

2. **Example:**
   A property listed for $400,000 receives an offer for $360,000. The percentage of listing price is:

   $360,000 divided by 400,000 = 90%

Earnest money deposit calculation

1. **Formula:**
   Deposit = Listing price x required percentage

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

   $320,000 x 2% = $6,400

Rent escalations

1. **Formula:**
   New rent = current rent x (100% + escalation rate)

2. **Example:**
   An apartment's rent is scheduled to increase by 6%. If the current rent is $1800, the new rent is:

   $1800 x (100% + 6%) = $1,800 x 106% = $1,908

FIRPTA withholding

1. **Formula:**
   FIRPTA withholding =
   gross proceeds from sale x 15%

2. **Example:**
   Gross proceeds on a FIRPTA-regulated property sale are $340,000. The required withholding amount is:

   $340,000 x 15% = $51,000

APPRAISAL

Key Terms

Anticipation
The benefits a buyer expects to derive from a property over a holding period influence what the buyer is willing to pay for it. For example, if an investor anticipates an annual rental income from a leased property to be one million dollars, this expected sum has a direct bearing on what the investor will pay for the property.

Appraisal
An opinion of value of a property developed by a professional and disinterested third party and supported by data and evidence.

Assemblage
A combining of contiguous parcels of real estate into a single tract, performed with the expectation that increased value will result.

Broker's opinion of value
An estimate of a property's value rendered by a party who is not necessarily licensed, objective, or qualified. The estimate may not be a complete appraisal.

Capitalization rate
The rate of return on capital an investor will demand from the investment property, or the rate of return that the property will actually produce.

Comparable
A property having similar characteristics to a subject property in an appraisal. The value or sale price of the comparable is used to estimate the value of the subject.

Comparative market analysis (CMA)
A method used by brokers and salespeople for estimating the current value of a property using sale price data from similar properties. Not to be confused with a bona fide appraisal performed by a licensed appraiser.

Conformity
This principle holds that a property's maximal value is attained when its form and use are in tune with surrounding properties and uses. For example, a two-bedroom, one-bathroom house surrounded by four-bedroom, three-bathroom homes may derive maximal value from a room addition.

Contribution
The increment of market value added to a property through the addition of a component or improvement to the property. Not to be confused with the cost of the component.

Cost approach
A method for determining value that takes into account the cost of the land and the replacement or reproduction cost of the improvements net of estimated depreciation.

Depreciation
1. A non-cash expense taken against the income of investment property that allows the owner to recover the cost of the investment through tax savings. 2. A loss of value to improved property.

Financial Institutions Reform, Recovery and Enforcement Act
In 1989, Congress passed the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA) in response to the savings and loan crisis. This act included provisions to regulate appraisal.

Gross income multiplier
A shortcut method for estimating the value of an income property. The procedure involves multiplying the property's gross annual income times a multiplier that reflects the ratio between gross annual income and sale price that is typical for similar properties in the area.

Gross rent multiplier
A shortcut method for estimating the value of an income property. The procedure involves multiplying the property's gross monthly rent times a multiplier that reflects the ratio between gross monthly rent and sale price that is typical for similar properties in the area.

Highest and best use
A theoretical use of a property that is legally permissible, physically possible, financially feasible, and maximally productive, usually in terms of net income generation.

Income capitalization approach
A method of appraising the value of a property by applying a rate of return to the property's net income.

Market value
An opinion of the price at which a willing seller and buyer would trade a property at a given time, assuming a cash sale, reasonable exposure to the market, informed parties, marketable title, and no abnormal pressure to transact.

Net operating income
The amount of pre-tax revenue generated from an income property after accounting for operating expenses and before accounting for any debt service.

Progression
The value of a property influences, and is influenced by, the values of neighboring properties. If a property is surrounded by properties with higher values, its value will tend to rise (progression).

Reconciliation
An appraiser's weighted blending of the results of different approaches to value into a final value estimate.

Regression
The value of a property influences, and is influenced by, the values of neighboring properties. If a property is surrounded by properties with lower values, its value will tend to fall (regression).

Replacement value
The value based on the cost of constructing a functional equivalent of the subject property's improvements, assuming current construction costs.

Reproduction value
The value based on the cost of constructing a precise duplicate of the subject property's improvements, assuming current construction costs.

Sales comparison approach
A method of appraising property that relies on the principle that a property is generally worth what other, similar properties are worth. See *substitution*.

Subdivision
The division of a single property into smaller properties can also result in a higher total value. For instance, a one-acre suburban site appraised at $50,000 may be subdivided into four quarter-acre lots worth $30,000 each. This principle contributes significantly to the financial feasibility of subdivision development.

Substitution
An appraisal principle that holds that a buyer will pay no more for a property than the buyer would pay for an equally desirable and available substitute property. Forms the foundation for the sales comparison approach to value.

Transferability
How readily or easily title or rights to real estate can be transferred affects the property's value. Property that is encumbered has a value impairment since buyers do not want unmarketable title. Similarly, property that cannot be transferred due to disputes among owners may cause the value to decline, because the investment is wholly illiquid until the disputes are resolved.

Uniform Standards of Professional Appraisal Practice
The Uniform Standards of Professional Appraisal Practice (USPAP) is a set of standards, guidelines and provisions for the appraisal industry. It resulted from the cooperation of nine national appraisal organizations in 1985.

Key Concepts

REAL ESTATE VALUE

- present monetary worth of benefits arising from ownership, including: income, appreciation, use, tax benefits

Foundations of real estate value

- anticipation, substitution, contribution, change, highest and best use, conformity, supply, demand progression, regression, assemblage, subdivision, utility, transferability

Types of value

- market, reproduction, replacement, salvage, plottage, assessed, condemned, depreciated, reversionary, appraised, rental, leasehold, insured, book, mortgage

APPRAISING MARKET VALUE

Market value

- price willing buyer and seller would agree on given: cash transaction, exposure, information, no pressure, arm's length, marketable title, no hidden influences

The appraisal and its uses

- a professional's opinion of value, supported by data, regulated, following professional standards; used in real estate decision-making

Steps in the appraisal process

- define purpose, collect and analyze data, identify highest and best use, estimate land value, apply basic appraisal approaches, reconcile, compile report

SALES COMPARISON APPROACH

- most commonly used; relies on principles of substitution and contribution

Steps in the approach

- compare sale prices, adjust comparables to account for differences with subject

Identifying comparables

- must be physically similar, in subject's vicinity, recently sold in arm's length sale

Adjusting comparables

- deduct from comp if better than subject; add to comp if worse than subject

Weighting adjustments

- best indicator has fewest and smallest adjustments, least net adjustment from the sale price

Broker's comparative market analysis

- abridged sales comparison approach by brokers and agents to find a price range

COST APPROACH

- most often used for recently built properties and special-purpose buildings

Types of cost appraised

- reproduction: precise duplicate; replacement: functional equivalent

Depreciation

- loss of value from deterioration, or functional or economic obsolescence

Steps in the approach

- land value plus depreciated reproduction or replacement cost of improvements

INCOME APPROACH

- used for income properties and in a rental market with available rental data

Steps in the approach

- value = NOI divided by the capitalization rate

GRM and GIM approach

- GRM: price divided by monthly rent;
  value: GRM times monthly rent;
  GIM: price divided by gross annual income;
  value: GIM times annual income

REGULATION OF APPRAISAL

Licensure

- state-licensed or -certified per FIRREA/ USPAP for federally-related appraisals

Professional standards

- USPAP establishes appraisal standards, guidelines and provisions

Professional associations and designations

- founders of Appraisal Foundation offer education and professional designations

Practical Application

Adjusting comparables

1. **Rules:**
   a. NEVER adjust the subject!
   b. If the comparable is better than the subject, subtract value from the comparable
   c. If the comparable is **worse** than the subject, **add** value to the comparable
2. **Examples:**
   a. A comparable has a pool and the subject does not.The appraiser estimates the value contribution to be $25,000. Adjust the comparable by entering -25,000 in the CMA.
   b. A comparable has 3 bedrooms and the subject has 4. The appraiser estimates the value contributionof a bedroom to be $15,000. Adjust the comparable by entering +15,000 in the CMA.

Income capitalization

Gross rent multiplier (GRM)

1. **Formula:**
   gross rent x multiplier = value
2. **Example:**
   $20,000 x 9 = $1,800,000

Net income capitalization

1. **Formula:**
   net income (NOI) ÷ capitalization rate = value
2. **Example:**
   $50,000 ÷ 10% = 50,000 ÷ .10 = $500,000

FINANCE

Key Terms

Adjustable rate loan
Allows the lender to change the interest rate at specified intervals and by a specified amount. Federal regulations place limits on incremental interest rate increases and on the total amount by which the rate may be increased over the loan term.

Amortization
A partial or complete reduction of a loan's principal balance over the loan term, achieved by periodic payments which include principal as well as interest.

Assumability
The measure of whether a mortgage can be transferred to another party (from a seller to a buyer, for example).

Debt ratio
An underwriting equation that is used to determine how much debt an individual can reasonably afford in view of the party's or household's income.

Deed of trust
An instrument used by a borrower to convey title to mortgaged property to a trustee to be held as security for the lender, who is the beneficiary of the trust.

Equal Credit Opportunity Act (ECOA)
Requires a lender to evaluate a loan applicant on the basis of that applicant's own income and credit rating, unless the applicant requests the inclusion of another's income and credit rating in the application. In addition, ECOA has prohibited a number of practices in mortgage loan underwriting. If a lender denies a request for a loan, or offers a loan under different terms than those requested by an applicant, the lender must give the applicant written notice providing specific reasons for the action.

FHA
Federal Housing Administration. An agency of the Department of Housing and Urban Development which insures permanent long-term loans that meet certain qualifications.

Fannie Mae
Federal National Mortgage Association. A government-sponsored agency in the secondary mortgage market which buys conventional, FHA, and VA loans, sells mortgage-backed securities, and guarantees payment of principal and interest on the securities.

Freddie Mac
Federal Home Loan Mortgage Corporation. A major secondary mortgage market.

Ginnie Mae
Government National Mortgage Association. A division of HUD which guarantees FNMA mortgages and securities backed by pools of VA-guaranteed and FHA-insured mortgages.

Hypothecation
Use of real property as collateral for a mortgage loan.

Income ratio
An underwriting ratio that relates a borrower's gross or net income and the debt service of a loan; used to determine how large a loan a borrower can reasonably afford.

Interest
A lender's charge for the use of the principal amount of a loan.

Lien theory
States differ in their interpretation of who owns mortgaged property. Those that regard the mortgage as a lien held by the mortgagee (lender) against the property owned by the mortgagor (borrower) are called lien-theory states.

Loan balance
At any point during the life of a mortgage loan, the remaining unpaid principal is called the loan balance, or remaining balance.

Loan commitment
A lender's written pledge to lend funds under specific terms. May contain deadlines and conditions.

Loan-to-value ratio (LTV)
An underwriting ratio that relates the size of a loan to the market value of the collateral. The closer the loan value is to market value, the riskier the loan is for the lender , since the lender is less likely to recover the debt fully from the proceeds of a foreclosure sale.

Mortgage
A legal document wherein a mortgagor pledges ownership interests in a property to a lender, or mortgagee, as collateral against performance of the mortgage debt obligation.

Mortgage financing
Financing that uses mortgaged real property as security for borrowed funds.

Mortgage insurance
Mortgage insurance protects the lender against loss of a portion of the loan (typically 20-25%) in case of borrower default.

Mortgagee
The lender named in the mortgage.

Mortgagor
A borrower who executes a mortgage.

Note
An agreement to repay a loan of an indicated amount under certain terms.

Payment
The loan term, loan amount, and interest rate combine to determine the periodic payment amount.

Points
Discount points are charged up-front by the lender to make up the difference between the interest rate on the loan and the required return. This effectively raises the yield of the loan to the lender. A discount point is one percent of the loan amount.

Primary mortgage market
Lenders and mortgage brokers who originate mortgage loans directly to borrowers.

Principal
The loan balance to which interest charges are applied.

Qualification
A mortgage underwriting procedure to determine the financial capabilities and credit history of a prospective borrower.

Real Estate Settlement Procedures Act (RESPA)
A federal law which aims to standardize settlement practices and ensure that buyers understand settlement costs. RESPA applies to purchases of residential real estate (one- to four-family homes) to be financed by "federally related" first mortgage loans. In addition to imposing settlement procedures, RESPA provisions prohibit lenders from paying kickbacks and unearned fees to parties who may have helped the lender obtain the borrower's business. To assist in informing and educating borrowers, RESPA requires that lenders provide a loan applicant with a loan information booklet and a loan estimate.

Regulation Z
A fair financing law applying to residential loans; lenders must disclose financing costs and relevant terms of the loan to the borrower.

Secondary mortgage market
Lenders, investors, and government agencies who buy, sell, insure, or guarantee existing mortgages, mortgage pools, and mortgage-backed securities.

Seller financing
Any financing arrangement where a seller takes a note and mortgage from the buyer for all or part of the purchase price of the property.

Term
The loan term is the period of time over which the loan must be repaid.

Title theory
States differ in their interpretation of who owns mortgaged property. Those that regard the mortgage document as a conveyance of ownership from the mortgagor to the mortgagee are called title-theory states.

Underwriting
A process of investigating the financial capabilities and creditworthiness of a prospective borrower and granting credit to a qualified borrower.
Uniform Settlement Statement
A standard government real estate form used to itemize all charges imposed upon a borrower and seller for a real estate transaction.

VA
The Veterans Administration (Department of Veterans Affairs) offers loan guarantees to qualified veterans. The VA, like the FHA, does not lend money except in certain areas where other financing is not generally available. Instead, the VA partially guarantees permanent long-term loans originated by VA-approved lenders on properties that meet VA standards.

Key Concepts

ANATOMY OF MORTGAGE LENDING

Mechanics of a loan transaction

- mortgage financing: using borrowed money secured by a mortgage to finance the purchase of real estate
- instruments: note and mortgage or trust deed
- mortgage mechanics: borrower gives lender note and mortgage; lender gives borrower funds and records a lien
- trust deed mechanics: trust deed conveys title from the borrower/trustor to a third-party trustee who holds title on behalf of the lender/beneficiary until the debt is repaid

Financial components of a loan

- original principal: capital amount borrowed on which interest payments are calculated

- loan balance: remaining unpaid principal at any point in the life of the loan
- interest: charge for the use of money; rate fixed or variable
- Annual Percentage Rate (APR) includes interest and all other finance charges; lender must disclose on residential properties
- point: one percent of the loan amount, charged by lender at origination to obtain required return
- term: period of time for repayment of interest and principal
- payment: the periodic payment of interest and/or principal

Promissory note

- legal instrument executed by borrower stating debt amount, loan term, method and timing of repayment, interest rate, promise to pay; may repeat other provisions from mortgage document or deed of trust; negotiable instrument assignable to a third party

Mortgage document and trust deed

- the legal documents which pledge the property as collateral for the loan
- may include clauses covering payment of principal and interest, prepayment, late charges, escrow for taxes and insurance, liens, insurance requirements, occupancy and maintenance, lender's rights, private mortgage insurance, inspection, and other conditions of performance

INITIATING A MORTGAGE LOAN

The loan application

- borrower provides personal and property data; supporting documentation: appraisal report, credit report, purchase contract, income and/or employment verification
- lenders must accept all completed applications and notify applicants about disposition of application

Mortgage loan underwriting

- process of evaluating borrower's ability to repay and value of the property
- loan-to-value ratio: relationship of loan amount to property value, expressed as a percentage

QUALIFYING FOR A MORTGAGE LOAN

Equal Credit Opportunity Act

- lender must evaluate applicant according to applicant's own income and credit information

Income qualification

- income ratio and debt ratio qualify borrower's income; income ratio applied to gross income determines housing expense maximum; debt ratio takes revolving debt into account

Cash qualification

- lender verifies applicant's sources of cash for down payment; extra cash enhances income qualification evaluation

Net worth

- extent to which applicant's assets exceed liabilities as a further source of reserves

Credit evaluation

- lender obtains credit reports to evaluate applicant's payment behavior

Loan commitment

- written pledge by lender to grant loan under specific terms; firm, lock-in, conditional, take-out

CLOSING A LOAN

- usually simultaneous with closing of real estate transaction; transfer of funds, signing of documents, escrow deposits

LAWS AFFECTING MORTGAGE LENDING

Truth-in-Lending and Regulation Z

- Reg Z implements Truth-in-Lending Simplification and Reform Act and Consumer Credit Protection Act
- provisions: lender must disclose finance charges and APR prior to closing; borrower has limited right of rescission; lender must follow disclosure requirements in advertising

Equal Credit Opportunity Act

- ECOA prohibits discrimination in lending

Real Estate Settlements and Procedures Act

- RESPA standardizes settlement practices
- provisions: lender must provide CFPB booklet explaining loans, settlement costs and procedures; lender must provide CFPB Loan Estimate of settlement costs within three days of application; lender must provide CFPB Closing Disclosure three days before loan consummation

National Flood Insurance Act

- borrowers of "federally-related loans" must obtain flood insurance if property is in designated flood-hazard area

THE MORTGAGE MARKET

Supply and demand for money

- relationship between money supply and demand affects interest rates, consumer prices, availability of mortgage money
- Federal Reserve controls: T-bills; reserve requirement, discount rate

The primary mortgage market

- originates mortgage loans directly to borrowers; savings and loans, commercial banks, mutual savings banks, life insurance companies, mortgage bankers, credit unions

The secondary mortgage market

- buys existing loans to provide liquidity to primary lenders; Fannie Mae, Ginnie Mae, Freddie Mac, investment firms, life insurance companies, pension funds

Role of FNMA, GNMA, and FHLMC

- FNMA buys conventional, FHA- and VA-backed loans and pooled mortgages; guarantees payment on mortgage-backed securities; GNMA guarantees payment on certain types of loans; FHLMC buys and pools mortgages; sells mortgage-backed securities

TYPES OF REAL ESTATE LOANS

Conventional loans

- permanent, long-term loans not insured by FHA or guaranteed by VA

FHA-insured loans

- insured loans granted by FHA-approved lenders to borrowers who meet FHA qualifications

VA-guaranteed loans

- guaranteed loans granted by VA-approved lenders to qualified veterans

Common loan structures

- amortizing, negative amortizing, interest only, fixed rate, adjustable rate, senior, junior, fixed or graduated payment, balloon, buydown

Seller financing

- purchase money mortgages: loans by the seller to the property buyer for all or part of the purchase price; contract for deed: installment sale where seller finances buyer and retains title until contract terms are met

Special-purpose loans

- home equity, package, construction, bridge, equity participation, take-out, reverse annuity, and blanket

Practical Application

Interest only loans

1. **Formulas:**
   interest payment (I) =
   principal (P) x interest rate (R)

   annual interest payment ÷ 12 = monthly interest payment

   monthly interest payment x 12 = annual interest payment

   $$I = P \times R$$

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

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

2. **Examples:**
   A $300,000 interest-only loan @ 10% has annual payments of $30,000 and monthly payments of $2,500.

   Annual interest = $300,000 x 10% = $30,000
   Monthly interest = $30,000 ÷ 12 = $2,500

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

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

Loan-to-value (LTV) ratio

1. **Formulas:**
   loan amount = market value x LTV

   LTV = loan amount ÷ market value

2. **Examples:**
   A 75% LTV will allow a lender to make a loan of $375,000 on a $500,000 property.

   loan amount = $500,000 x 75% = $375,000

   LTV = $375,000 ÷ $500,000 = 75%

Income underwriting ratio calculation

1. **Formulas:**
   Conventional:
   monthly PITI = (25-28%) x monthly gross income

   FHA: monthly PITI = 31% x monthly gross income

2. **Examples:**
   A borrower has monthly gross income of $2,000. Conventional lenders are using a ratio of 28%. The borrower can afford the following monthly PITI payments:

   Conventional:
   PITI = 28% x $2,000 = $560

   FHA:
   PITI = 31% x $2,000 = $620

Debt underwriting ratio calculation

1. **Formulas:**
   Conventional:
   Expense = (36% x gross income) – monthly debt

   FHA:
   Expense = (43% x gross income) - monthly debt

2. **Examples:**
   An individual has a monthly gross income of $6,000, and has monthly debt payments of $900. The borrower can afford the following monthly housing expense:

   Conventional:
   Expense = (36% x $6,000) - 900 = $1,260

   FHA:
   Expense = (43% x $6,000) – 900 = $1,680

Points

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

2. **Example:**
   A lender charges 3 points (3%) on a $350,000 loan. The points charges are:

   3 points = 3%
   .03 x $350,000 = $10,500

INVESTMENTS

Key Terms

Adjusted basis
The beginning basis, or cost, of a property plus the costs of capital improvements, minus all depreciation expense.

Appreciation
An increase in the value of a property generally owing to economic forces beyond the control of the owner.

Capital gain
When real estate, whether non-income or income, is sold, a taxable event occurs. If the sale proceeds exceed the original cost of the investment, subject to some adjustments, there is a capital gain that is subject to tax. If the sales proceeds are less than the original cost with adjustments, there is a capital loss.

Cash flow
The remaining positive or negative amount of income an investment produces after subtracting all operating expenses and debt service from gross income.

Cost recovery
Cost recovery, or depreciation, allows the owner of income property to deduct a portion of the property's value from gross income each year over the life of the asset. The "life of the asset" and the deductible portion are defined by law. In theory, the owner recovers the full cost of the investment if it is held to the end of the asset's economic life as defined by the Internal Revenue Service.

Gain on sale
An excess of proceeds from sale of a property over the original cost of the property, subject to adjustments.

General and limited partnerships
A general partnership is a syndicate in which all members participate equally in managing the investment and in the profits or losses it generates. The group designates a trustee to hold title in the name of the syndicate. A limited partnership is a syndicate in which a general partner organizes, operates and is generally responsible for the partnership's interests in the property. Limited partners invest money in the partnership but do not participate in operating the property. These limited partners are passive investors.

Income property
A property owned specifically for the investment rewards it offers. Examples are multi-family residential properties, retail stores, industrial properties, and office buildings. Rewards come in any or all of these forms: income, appreciation, leverage and tax advantages.

Leverage
The relationship between the yield rate of an investment and the interest rate of funds borrowed to finance the investment. If the yield rate is greater than the loan rate, positive leverage results. If the yield rate is less than the loan rate, negative leverage results.

Liquidity
The degree to which an investment is readily marketable, or convertible to another form of asset. If immediately salable, an investment is liquid; the longer it takes to sell, the more illiquid the investment. Real property is relatively illiquid in comparison with other types of investment.

Non-income property
A residential property used as the investor's primary residence. The basic reward, beyond the enjoyment of use, comes in the form of appreciation. There may also be tax benefits, depending on how the purchase is financed.

Opportunity cost
The return that an investor could earn on capital invested with minimal risk. If the real estate investment, with all its attendant risk, cannot yield a greater return than an investment elsewhere involving less risk, then the opportunity cost is too high for the real estate investment.

Passive activity
Business activities in which the taxpayer does not materially participate. Included are interests in limited partnerships and rental activities. Losses from such activities may be used to offset income from other passive activities. Passive losses, with certain limitations, may be carried forward to future years or accumulated and deducted from capital gain at the time of sale.

REIT
In a Real Estate Investment Trust, investors buy certificates in the trust, and the trust in turn invests in mortgages or real estate. Investors receive income according to the number of shares they own. A trust must receive at least 75% of its income from real estate to qualify as a REIT, and if certain other conditions are met, the trust does not have to pay any corporate income tax.

REMIC
Real Estate Mortgage Investment Conduit. A kind of partnership entity formed to hold a fixed pool of mortgages that are secured by real property. The entity issues two kinds of interest. Holders of residual interests are treated, for tax purposes, as partners. Holders of regular interests are regarded as owning debt instruments. Income (or loss) received by regular or residual interest holders is treated as portfolio income or loss, and is not included in determining losses from passive activities.

Syndicate
A real estate syndicate is a group of investors who combine resources to buy, develop, and/or operate a property.

Tax liability
The seller of a principal residence may owe tax on capital gain that results from the sale. The IRS defines gain on the sale of a home as amount realized from the sale minus the adjusted basis of the home sold.

Key Concepts

INVESTMENT FUNDAMENTALS

Investment characteristics
- the greater the risk, the higher the expected return
- some investments require more investor involvement than others
- some investments are more liquid (convertible to cash) than others

Rewards
- investors seek to increase wealth through income, appreciation, leverage and tax benefits

Risks
- risks: changes in supply and demand for the investment (market risk), changes in businesses with which the investment is connected (business risk), changes in the value of money (purchasing power risk), and changes in interest rates (financial risk)

Types of investments
- among the investor's choices are investments in money (e.g., certificates of deposit), equity (e.g., stocks), debt (e.g., bonds and mortgages), and real estate (income and non-income properties)

REAL ESTATE AS AN INVESTMENT

Risk and reward
- the real estate investor must weigh the potential risks and returns inherent in market variability, expected vs. real income, use of borrowing leverage, changes in tax treatment of capital gains and income, and the cost of capital

Illiquidity
- real estate is generally less liquid than other investment types: it takes time to market a property

Management requirements
- real estate tends to require more investor involvement than other investments do: maintenance, management, operation

REAL ESTATE INVESTMENT ENTITIES

Direct
- buying a property and taking responsibility for management and operation

Syndicate and partnership
- a group of investors pool resources to buy, develop and/or operate a property

Real Estate Investment Trust
- REIT: investors buy certificates in a trust that invests in mortgages or real estate and receive income according to shares owned

Real Estate Mortgage Investment Conduit
- REMIC: investors hold residual or regular interests in an entity that holds a pool of mortgages secured by real property

TAXATION OF REAL ESTATE INVESTMENTS

Taxable income
- gross income received minus allowable expenses, deductions and exclusions

Cost recovery
- deduction of a portion of a property's value from gross income each year over the life of the asset

Gain on sale
- an excess of proceeds from sale of a property over the original cost of the property, subject to adjustments

Interest
- mortgage interest is deductible from annual gross income from a property, subject to limitations

Passive activities
- business activities in which the taxpayer does not materially participate, including interests in limited partnerships and rental activities; losses from such activities can be used to offset income from other passive activities

INVESTMENT ANALYSIS OF A RESIDENTIAL PROPERTY

Appreciation
- increase in the value of an asset over time; may be stated as a difference between the original price and current market value, or as a percentage increase over the original price; not a true measure of investment return

Deductibles
- for non-income properties, primary tax benefit is annual deduction for mortgage interest

Tax liability
- the seller of a principle residence owes tax on any capital gain that results from the sale unless excluded; capital gain is defined as the amount realized minus the adjusted basis

Gains tax exclusion
- up to $250,000 for a single seller and $500,000 for a married couple can be excluded from gains tax every two years

INVESTMENT ANALYSIS OF AN INCOME PROPERTY

Pre-tax cash flow
- annual pre-tax cash flow is net operating income minus debt service

Tax liability
- tax liability on income from a property is based on taxable income: net operating income minus interest expense and cost recovery

After-tax cash flow
- annual after-tax cash flow is pre-tax cash flow minus tax liability

Investment performance
- a few common measures of investment performance are:
  - return on investment (net operating income divided by price)
  - cash-on-cash return (cash flow divided by cash invested)
  - return on equity (cash flow divided by equity)
  - discounted cash flow analysis
  - internal rate of return

Practical Application

Appreciation

1. **Formulas:**

   total appreciation = current value – original price

   total appreciation rate = total appreciation / original price

   one-year appreciation rate = one-year appreciation / prior-year value

2. **Example:**
A house bought for $500,000 appreciates $50,000 each year for 3 years.

total appreciation = $650,000 - 500,000 = $150,000

total appreciation rate = $150,000 ÷ $500,000 = 30%

first-year rate = $50,000 ÷ $500,000 = 10%

Equity

1. **Formula:**
equity = current value – current loan amount

2. **Example:**
A buyer bought a property for $600,000 with a loan of $450,000. The house has appreciated $60,000 and the buyer has reduced the original loan by $30,000. The buyer's current equity is:

Equity =
($600,000 + 60,000) - ($450,000 - 30,000) = $240,000

Pre-tax cash flow

1. **Formula & Example:**

potential rental income	$50,000
- vacancy and collection loss	3,000
= effective rental income	47,000
+ other income	2,000
= gross operating income (GOI)	49,000
- operating expenses	20,000
- reserves	3,000
= net operating income (NOI)	26,000
- debt service	15,000
= pre-tax cash flow	11,000

Tax liability

1. **Formula & Example:**

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

Annual depreciation (cost recovery) expense

1. **Calculation:**
   a. identify improvements-to-land ratio
   b. identify value of improvements: ratio x property price
   c. divide value of improvements by total depreciation term

2. **Example:**
A property was bought for $400,000. 75% of the value is allocated to the improvement. The property falls in the 39-year depreciation category.

(1) improvements-to-land ratio = 3:1, or 75%

(2) improvement value = $400,000 x 75% = $300,000

(3) annual depreciation = $300,000 ÷ 39 = $7,692

Capital gain

1. **Formula & Example:**
(residential property)

Selling price of property	$300,000
- Selling costs	24,000
= Amount realized (ending basis)	$276,000
Beginning basis (price) of property	$250,000
+ Capital improvements	10,000
- Total depreciation expense	0
= Adjusted basis of property	260,000
Amount realized (ending basis)	$276,000
- Adjusted basis of property	260,000
= Capital gain	$16,000

Return, rate of return, and investment amount

1. **Formulas:**

$$\frac{\textit{net operating income}}{\textit{price}} = \textit{return on investment (ROI)}$$

$$\frac{\textit{cash flow}}{\textit{cash invested}} = \textit{cash-on-cash return (C on C)}$$

$$\frac{\textit{cash flow}}{\textit{equity}} = \textit{return on equity (ROE)}$$

2. **Examples:**
   A property is bought for $200,000 with a $50,000 down payment and a $150,000 interest-only loan. The property has a net income of $20,000 and a cash flow of $8,000. In addition, the property has appreciated $30,000.

   ROI = $20,000 ÷ $200,000 = 10%

   C on C = $8,000 ÷ $50,000 = 16%

   ROE = $8,000 ÷ $80,000 = 10%

TAXATION

Key Terms

Ad valorem
A real property's annual tax levied by taxing entities according to the property's assessed value.

Assessed value
The value of a property as established by assessors for the purpose of ad valorem taxation.

Homestead exemption
An exemption of a portion of the assessed value of a homeowner's principal residence from ad valorem taxation.

Special assessment
A tax levied against specific properties that will benefit from a public improvement. Common examples are assessments for sidewalks, water service and sewers. Special assessments are based on the cost of the improvement and apportioned on a pro rata basis among benefiting properties according to the value that each parcel will receive from the improvement.

Tax base
The total of the assessed valuations of real properties within a taxing jurisdiction, less the total of exemptions.

Tax certificate
An instrument that gives the holder the right to apply for a tax deed after paying taxes on a property and after a statutory period.

Tax deed
A deed used to convey title to property sold in a tax foreclosure.

Tax district
A local government entity authorized by state, county, or municipality to levy taxes for a particular purpose.

Tax levy
The part of budgeted expenditures that cannot be funded from other income sources, and thus must come from real property taxes.

Tax lien
If a taxing entity initiates an assessment, the assessment creates an involuntary tax lien. If property owners initiate the assessment by requesting the local government to provide the improvement, the assessment creates a voluntary tax lien.

Tax rate
The ad valorem tax rate of a taxing district, derived by dividing revenues required from taxpayers by the district's tax base. If the millage rate is 30, the tax rate is 3%, or $3.00 per $100 of assessed valuation (net of exemptions).

Tax sale
A court-ordered sale of a property to satisfy unpaid real estate taxes.

Key Concepts

TAXING ENTITIES

- no federal ad valorem taxes, only federal tax on income and gain; federal government can impose a tax lien against real property

State government

- states may levy property taxes but many delegate this power to county and local government; states can impose a tax lien against real property

County and local government

- counties, cities, municipalities, townships and special tax districts levy taxes on real property

Tax districts

- established to collect funds for providing specific services, e.g., schools, fire protection, parks, community colleges, libraries, road maintenance

AD VALOREM TAXATION

- property tax levied annually on the taxable value of a property in order to help fund government and public services

Tax base totalling

- tax base equals the total of assessed values of all real property within the area, excluding exemptions

Homestead exemption

- a tax exemption of a portion of the assessed value of a property owned and occupied as a family home

Other exemptions

- immune from tax: government-owned properties; exempt from taxes: properties owned by non-profit-organizations

Tax rate derivation

- taxing entity determines what budget requirements must be met by ad valorem tax; (2) divide tax requirement by the tax base
- tax rate stated as mills ($.001), or dollars per $100 of assessed value, or dollars per $1,000 of assessed value, or as a percentage of assessed value

Tax billing and collection

- individual tax bill: tax rate times taxable value
- taxable value: assessed value minus exemptions and adjustments

SPECIAL ASSESSMENTS

- tax levied against specific properties that will benefit from a public improvement; amount is based on a pro rata share of the cost of the improvement and the value each parcel will receive from the improvement

TAX LIEN ENFORCEMENT

Sale of tax certificates

- the buyer of a tax certificate agrees to pay the taxes due and after a period of time may apply for a tax deed on the property

Tax deed

- conveys title in the tax sale

Tax sale

- the buyer must pay the taxes due, if still unpaid; the defaulted taxpayer may be able to redeem the property and reclaim title; if not redeemed, the state issues the tax deed to convey title to the buyer

Practical Application

Tax rate calculation

1. **Formula:**

$$\text{tax rate (millage rate)} = \frac{\text{tax requirement}}{\text{tax base}}$$

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

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

Homestead exemption calculation

1. **Formula & Example:**

assessed value	$360,000
- homestead exemption	50,000
taxable value	$310,000

Taxing the property

1. **Formulas:**
taxable value of property x tax rate (mill rate) for each taxing authority in jurisdiction

total tax = sum of all taxes by taxing authority

2. **Example:**
The taxable value of a property after exemptions is 400,000 and tax rates are as shown. The property's tax bill will be:

School tax: $400,000 x 10 mills =	$4,000
City tax: $400,000 x 4 mills =	1600
County tax: $400,000 x 3 mills =	1200
Total tax:	$6,800

Special assessments calculation

1. **Formula:**
   a. Identify total costs to be assessed
   b. Calculate prorated share for each property impacted
   c. Multiply cost x prorated share

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

   (1) 200' ÷ 4,000' = 5% share

   (2) $200,000 x 5% = $10,000 assessment

CLOSINGS

Key Terms

Beneficiary statement
(See payoff statement)

Buyer's walk-through
A buyer's final inspection of the property to make certain that the property is in the condition in which the seller states that it is, and that any repairs or other required actions have been performed. It should be conducted as close to the closing date as possible.

Closing
A meeting of principal parties where a seller transfers title and a buyer pays monies owed the seller and lender.

Closing costs
Final expenses that buyer or seller must pay at closing to complete the transaction.

Credit
An accounting entry on a closing statement indicating an amount a party has paid or is to receive.

Debit
An accounting entry on a closing statement indicating an amount a party must pay.

Escrow
If the closing occurs "in escrow" rather than face-to-face, the principal parties deposit funds and documents with the appointed escrow agent, and the escrow agent disburses funds and releases documents to the appropriate parties when all the conditions of the escrow have been met. If for any reason the transaction cannot be completed, for instance if the buyer refuses the title as it is offered, or the buyer fails to produce the necessary cash, the escrow instructions usually provide a mechanism for reconveying title to the seller and funds to the buyer. In such a case, both parties return to their original status as if no sale had occurred.

In advance
At the time of closing, the seller has paid some items in advance that cover a period of time that goes beyond the closing date. In effect, the seller has prepaid some of the buyer's expenses, and the buyer must reimburse the seller. Heating oil and natural gas are typical items. By the same token, the seller of a rental property may have received rent or rental deposits in advance, and must reimburse the buyer for the part that belongs to the buyer. For an expense the seller paid in advance, the buyer receives a debit and the seller receives a credit. For income the seller received in advance, the buyer receives a credit and the seller receives a debit.

In arrears
At the time of closing, the seller has incurred certain expenses that have not been billed or paid at the time of closing and that the buyer will have to pay later. A typical item is real estate taxes. For an item the buyer will pay in arrears, the buyer receives a credit and the seller receives a debit.

Payoff statement
If the seller's mortgage lien(s) are to be satisfied at closing, the lender will provide a payoff statement, also called an offset statement, specifying the amount of unpaid principal and any interest due as of the closing date, plus fees that will be due the lender and any credits or penalties that may apply. The holder of a note secured by a trust deed will provide a similar statement, called a beneficiary statement, to show any unpaid balance.

Proration
Apportionment of expense and income items at closing. Examples of items prorated between buyer and seller include interest, insurance, taxes, and rent. The primary methods of calculating prorations are the 360/30-day method, which computes prorations on the basis of a 360-day year and 30-day month, and the 365-day method, which computes prorations on the basis of a 365-day year.

Real Estate Settlement Procedures Act (RESPA)
A consumer protection statute enacted in 1974. Its purpose is to clarify settlement costs and to eliminate kickbacks and fees that increase settlement costs.

Transfer tax
Certain transfer taxes that are due in connection with the closing appear and are accounted for on the closing statement. These include state taxes relating to the deed and to the buyer's mortgage. In addition to state-imposed taxes, counties and municipalities may also impose a tax on the real estate transfer.

Key Concepts

THE CLOSING EVENT

The setting
- sale contract sets date, location, and who participates

The closing process
- verify contract fulfillment; exchange consideration and title; pay expenses; sign final documents; arrange for recording the transaction

Transfer of title
- seller gives evidence of marketability – title abstract or title insurance commitment; may also need affidavit stating no new encumbrances incurred; seller must remove encumbrances or liens prior to the specified date; if seller is paying off mortgage lien, lender provides a payoff statement

Transfer of purchase funds
- buyer produces funds and documents needed to complete the transaction

Escrow procedures
- if closing "in escrow," escrow agent holds and disburses funds and releases documents when escrow conditions have been met

Lender closing requirements
- common: survey, inspections, hazard insurance, title insurance, certificate of occupancy, reserves for taxes and insurance, private mortgage insurance

Broker's role
- broker's role ranges from nil to conducting the proceedings to reporting the transaction

REAL ESTATE SETTLEMENT PROCEDURES ACT

- for residential property, first or second mortgage, federally-related mortgage, assumption modifying loan terms, lender charging over $50 for assumption

Information booklet
- lender must provide borrower with CFPB booklet, "Your Home Loan Toolkit"

Loan Estimate
- lender must provide CFPB's H-24 Loan Estimate of settlement costs

Mortgage servicing disclosure
- lender must disclose who will be servicing loan

Closing Disclosure
- lender must use CFPB's H-25 Closing disclosure

Disclosures after settlement
- loan servicers must provide annual escrow statements to borrowers

Limits on escrow accounts
- places ceiling on amounts lenders may compel borrowers to place in escrow

Referral fees and kickbacks
- RESPA prohibits payment of referral fees and kickbacks; business relationships between firms involved in the transaction must be disclosed

FINANCIAL SETTLEMENT OF THE TRANSACTION

Settlement process
- identify closing costs; determine who pays what; do prorations; assign debits and credits; complete closing statement; disburse funds

Selling terms and closing costs
- price, deposits, downpayment, financing, final expenses to be paid at closing; apportionment of expenses determined by sale contract or custom

Debits and credits
- excess of buyer's debits over credits is amount buyer must produce at closing; excess of seller's credits over debits is amount seller must receive

Non-prorated items
- incurred by one party only; not shared

Prorated items
- incurred by buyer or seller in advance or arrears; shared by buyer and seller; typical: real estate taxes, insurance premiums, mortgage interest, rents

COMPUTING PRORATIONS

- sale contract or local custom establishes methods of proration to be used for particular items

12-month/30-day method
- determines average daily amount based on 12-month year and 30-day month

365-day method
- determines an amount using the actual number of calendar days

TAXES DUE AT CLOSING

State taxes on deed

- state, counties and municipalities may impose taxes on transfer

State taxes on mortgage

- state may impose taxes on mortgages, notes and contracts

TILA/RESPA INTEGRATED DISCLOSURES RULE

Forms and procedures

- effective October 3, 2015
- mandatory: Your Home Loan Toolkit booklet at loan application; Loan Estimate form 3 business days after loan application; Closing disclosure 3 business days before consummation

Good faith

- Loan Estimate costs based on best information available
- Closing Disclosure costs equal estimate costs within certain tolerances

Types of charges

- no limitation on increase over estimate
- 10% tolerance charges
- 0 tolerance charges

Applicable transactions

- most closed-end consumer mortgages, including: construction loans, loans secured by vacant land, loans to trusts
- not covered: home equity loans, reverse mortgages, loans on mobile homes, loans by small lenders (no more than 5 loans per year)

The H-25 form

- 5 pages, variable by loan type

REPORTING REQUIREMENTS

Who must report

- "real estate broker" defined by the Tax Reform Act of 1986; buyer's or seller's broker, settlement agent, mortgage lender, other IRS-designated party

What must be filed

- Form 1099-S Information Return
- statements to each party
- tax reporting and withholding if FIRPTA applies (non-resident alien)

Practical Application

Prorations

Formulas & Rules:

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

	arrears	advance	debit	credit
real estate taxes	x		seller	buyer
rents received by seller		x	seller	buyer
utilities	x		seller	buyer

Whose share is charged to whom?

- if buyer pays taxes in arrears:
  charge seller, credit buyer for seller's portion
- if seller received rents in advance:
  charge seller, credit buyer for buyer's portion
- if seller pays utilities in advance:
  credit seller, charge buyer for seller's portion

Calculating the proration:
360-day method and 365-day method

1. **Calculate the daily proration amount**
   a. 360-day method: divide the annual amount by 360 or monthly amount by 30

   b. 365-day method: divide the annual proration amount by 365, or monthly amount by # days in that month

2. **Calculate # of seller's days**
   a. 360-day method: use 30 days for each month; actual number of seller days within the month, counting (or not counting) the day of closing

   b. 365-day method: use actual number of days for each month and partial month

3. **Calculate the seller's share**
   Multiply the daily amount times the number of seller's days – both methods

4. **Calculate buyer's share (both methods)**
   Subtract seller's share (from #3) from total share

Example:

A rental property closes on January 25 and the closing day is the seller's. The 365-day method will be used for the prorations. Monthly rent already received by seller is $2,400. Annual real estate taxes to be paid in arrears by buyer are $4,000. Round to the nearest cent.

1. **Rent proration:** (monthly; 365-day method)
   Daily amount: $2,400 monthly rent ÷ 31 days in January = $77.42

   # Seller's days: 25

   Seller's share: $77.42 x 25 = $1,935.50

   Buyer's share: $2,400 – $1,935.50 = $464.50

   Credit buyer and debit seller for buyer's share of $464.50

2. **Tax proration:** (annual; 365-day method)
   Daily amount: $4,000 ÷ 365 = $10.96

   # Seller's days: 25

   Seller's share: $10.96 x 25 = $274

   Buyer's share: $4,000 – $274 = $3,726

   Credit buyer and debit seller for seller's share of $274

Real Estate Mathematics Review Questions

1. $\frac{4}{7} + \frac{3}{11}$
   a. 7/18
   b. 65/77
   c. 12/77
   d. 21/44

2. $\frac{2}{13} \times \frac{4}{5}$
   a. 5/26
   b. 6/18
   c. 8/65
   d. 10/13

3. **Convert the following decimal to a percentage: 0.294**
   a. 0.0294%
   b. 0.294%
   c. 2.94%
   d. 29.4%

4. **Convert the following percentage to a decimal: 72.1%**
   a. 0.0721
   b. 0.721
   c. 7.21
   d. 72.1

5. **Convert the following fraction to a percentage: 14/42**
   a. 33.3%
   b. 3.3%
   c. 0.3%
   d. 0.03%

6. **Convert to a fraction, and reduce, the following percentage: 40%**
   a. 40/100
   b. 4/10
   c. 20/50
   d. 2/5

7. **What is 20% of 12?**
   a. 24
   b. 2.4
   c. 60
   d. 0.6

8. **Calculate the area of the following shape: a triangle with height of 4' and base of 36'**
   a. 144 SF
   b. 96 SF
   c. 72 SF
   d. 40 SF

9. **Calculate the area of the following shape: a square with a side of 16'**
   a. 32 SF
   b. 128 SF
   c. 172 SF
   d. 256 SF

10. **Calculate the area of the following shape: a trapezoid with height of 4' and bases of 3' and 5'**
    a. 60 SF
    b. 32 SF
    c. 16 SF
    d. 12 SF

Answers:

1. B,	**2. C,**	**3. D,**	**4. B,**	**5. A**
6. D,	**7. B,**	**8. C,**	**9. D,**	**10. C**