• **Mortgage** is any loan secured by real estate. (You’re giving real estate as collateral)

  - If the borrower fails to repay the loan, the lender can claim the real estate from the borrower. The legal process of doing this is called *foreclosure*. (Also known as a *lien* on the property)
  
  - Usually the amount of money borrowed has to be less than the value of the property used as collateral.

• **Loan to Value Percent (LTV)**

  - Mortgage lenders usually set a maximum amount of the property’s value that you can borrow with a mortgage.

  - If the LTV (from a particular lender) is 95% on a $140,000 property, the maximum you could borrow (from that lender) is $140,000 \times 0.95 = $133000

• **Equity**

  - *Homeowner’s Equity* is the difference between the value of the property and the amount that is owed. (sometimes just called *equity*)

    \[
    \text{Equity} = \text{value of home} - \text{amount of mortgage(s)}
    \]

  - In the example above, if the homeowners borrowed $133000 and their house was worth $140,000, their equity is

    $140,000 - $133,000 = $7,000

  - Often lenders state the minimum equity, rather than the maximum LTV

    \[
    100\% = \text{LTV\%} + \text{Equity\%}
    \]
• First and Second Mortgage
  – *First Mortgage* is the primary loan on the property
  – *Second Mortgage* is an additional loan made with the property as equity.
  – If there is a foreclosure, the lender of the first mortgage gets first claim to the property. The lender of the second mortgage gets paid only if there is enough money after the first lender gets everything they are entitled to.

• What are LTV/Equity Really saying:
  – Value of Home = Mortgage 1 + Mortgage 2 + Equity

   *The home is partially owned by Bank 1, partially owned by Bank 2, and partially owned by the Home Owners.*

  – \[ \text{LTV} \times (\text{value of Home}) = \text{Mortgage 1} + \text{Mortgage 2} \]

   *LTV is the banks way of telling you what % of your homes value can be used in loans, vs what percent you need to keep for your Equity*

  – (or substitute only one mortgage if applicable)

• Negative Equity
  – Happens when a Home owner owes more than the home is worth.
• Types of Mortgages

  – **Fixed Rate** (Fixed)
    * Like we saw in Chap 4
    * The interest rate for the whole term of the Mortgages (20 or 30 years) is set at the beginning of the loan.
    * Since the interest rate is the same, the monthly payments are the same for the whole term of the loan

  – **Adjustable Rate Mortgage** (ARM)
    * There is an initial period of time where the interest rate is fixed.
    * Then there are rules about when and by how much the interest rate may change.
      - Often it can change once a year
      - Often the change is tied to independent benchmarks (like average yield on US treasury bonds or London Interbank Offered Rate)
      - Often there is a limit (*cap*) on how much the rate can be raised.
        (For example, it can’t be raised more than 2% and year, and can’t go above 14.99%, etc)

    * Notation: When we say a 7/30 adjustable rate mortgage we mean the rate is fixed for the first 7 years, and the term of the loan is 30 years (including the first 7)
    * ARM’s tend to offer better initial interest rates than fixed rates mortgages.
• Additional Monthly Expenses

– *Real Property Tax (Real Estate Taxes/Property Tax):* Taxes you pay based on the value of of the real-estate you own. Usually levied by county governments or school districts.

– *Home owners insurance:* If your home is destroyed (and you don’t have insurance) you might stop paying your mortgage (your mortgage lender doesn’t want this to happen).

– *Escrow account:* Some mortgage lenders require escrow accounts where you pay $\frac{1}{12}$ your estimated real estate taxes and $\frac{1}{12}$ your home owners insurance each month. This is easier than just pulling out a large sum of money once or twice a year.

– *Private Mortgage Insurance (PMI)*
  * Even though you (likely) borrow less that the house is worth, if you foreclose, there are many costs the mortgage lender may incur, so they may not get their full value back.
  * If your down payment is 20% (or more) a mortgage lender cannot legally require you to have PMI
  * Once your equity reaches 22% (based on the original payment schedule), the PMI will be removed automatically.
  * You can apply to have PMI removed whenever your equity reaches 20%

• PITI (Total Monthly Payment)

– PITI stands for Principal, Interest, Taxes, and Insurance

– There are all (possible) things you have to pay each month, not just the ‘monthly payment’ (PMT) from your mortgage.

\[
PITI = \underbrace{\text{Monthly Mortgage PMT}}_{\text{Principal+Interest}} + \underbrace{\text{Escrow Act Payments}}_{\text{Taxes+Insurance}} + \underbrace{\text{PMI}}_{\text{Other Insurance}}
\]
• Qualifying for a Mortgage

- Lenders decide how big a risk you are, which determines what interest rate and terms your offered (if you’re offered a Mortgage at all)

- Most lenders look at:
  * **Credit History:** It’s attractive to lenders if you have a history of borrowing money and paying it back on time
  * **Employment Stability** Since mortgages are long term loans, it’s attractive to lenders if you have a long, stable employment history. (Many lenders factor in time in school)
  * **Income** Do you make enough money to make the monthly payments?

- Two Common ratio tests for income:
  * **The 28% Rule:** Total PITI must be less that 28% of gross monthly income.
  * **The 36% Rule:** Total PITI and all other long-term debt payments must be less than 36% of gross Monthly income. (Long-term debt is any debt with more than one year left on its term)

* Lenders usually require you to pass BOTH tests
* Passing the tests does NOT guarantee you will be ‘comfortable’ making the monthly payments.

• Up-Front Expenses

- **Down Payment** (you’re usually not allowed to borrow 100% of the house’s cost/value in a mortgage)
- **Inspections** Your lender will often require inspections to make sure there is no mold, leaky roof, insect damage, etc
- **Legal Fees, Appraisal, mortgage tax.**
- **Title search and insurance** makes sure the seller is the legitimate owner of the house.

- **Prepaids**
  * You’ll need to pay the first year’s home owners insurance payment immediately.
  * For Property Tax:
    - you may need to repay the previous home owners for some of the year’s property tax they’ve already paid
    - and/or your property tax may be due within a month or two of you buying the house.

• Together they are called **closing costs**
1. Jay and Kay own a house worth $134,800, they owe $89,050 on their first mortgage. They want to take out a second mortgage, and all the lenders they’ve spoken to require a minimum equity of 5%.

   (a) Find their equity now.
   (b) What is the maximum amount of money they can borrow with a second mortgage?
   (c) What will their equity be if they borrow the maximum amount of money with the second mortgage?

2. Suppose Jay and Kay find a lender for their second mortgage who will let them borrow up to a maximum 110% of their home’s value.

   (a) How much could they borrow with this loan?
   (b) What would their equity be if they borrowed the maximum with this loan?

3. Nina took out $130,000 in a 5/30 ARM. Her initial interest rate is 3.43%.

   (a) What will Nina’s monthly payments during the first 5 years?
   (b) What will Nina’s monthly payments be during year 6?

4. Find the monthly Escrow payments John and Oliver need to make if their annual property tax will be $4870 a year and their homeowners’ insurance premium is $805 per year?

5. Rena and Steve bought a house for $150,295 and took out a $138,000 mortgage. It’s been over 2\(\frac{1}{2}\) years and their mortgage balance has dropped to $131,731, and the house’s market value has risen to $159,000, can they apply to have the PMI removed?

6. John and Erin earn a combined annual income of $92,500. They are trying to buy a house where their monthly mortgage payment will be $850.10. They expect their annual proper taxes to be $4,800, their home owners insurance premium is $800 (per year), and their PMI is $40 a month.

   (a) Find their PITI.
   (b) Do they pass the 28% test?
   (c) Suppose John has 11 months left on his student loans, and his monthly payments are $175.00, and Erin has 3 years and 4 monthly left on her student loans, her monthly payments are $190.50 per month. They have a car loan with 2.5 years left, and monthly payments of $321.70. Do they pass the 36% test?
7. Determine if the following are True or False

(a) **True/False:** If a lender approves you for a mortgage, that guarantees you’ll be comfortable making your monthly payments.

(b) **True/False:** A Mortgage is an *unsecured loan* (a loan without any collateral)

(c) **True/False:** Escrow is the amount of the home that the home owners own.

(d) **True/False:** Equity is an account that many mortgage lenders require where the home owners will pay 1/12 of the yearly Property Tax and Home Owners Insurance costs each month.

(e) **True/False:** Every mortgage lender will consider the exact same factors to determine who qualifies for a Mortgage.

(f) **True/False:** The downpayment is an example of a closing cost associate with Mortgages

(g) **True/False:** Your monthly PMI is an example of a closing cost associate with Mortgages

(h) **True/False:** Prepaids (repaying the previous owner for Property Tax and paying the coming years home owner’s insurance) is/are examples of a closing costs associate with Mortgages

(i) **True/False:** Everyone pays PMI for the whole term of their Mortgage.

(j) **True/False:** All mortgages are fixed-rate mortgages

(k) **True/False:** The only monthly costs associated with owning a home is the monthly payment (PMT) of your mortgage.

(l) **True/False:** The only monthly costs associated with owning a home is the monthly payment (PMT) of your mortgage and PMI.

(m) **True/False:** The monthly payment (PMT) of your mortgage, Property Taxes and Home Owners insurance (as monthly payments into an Escrow Account) and PMI (if applicable) are all monthly costs associated with home ownership.

(n) **True/False:** Once you pass the 28% rule, you can apply to get the PMI removed.

(o) **True/False:** Once your equity reaches 20%, you can apply to get the PMI removed.

8. (Optional) Molly took out $130,000 in a 30 year fixed-mortgage at 3.99%, find her monthly payments.

9. (Optional) Megan and Tom are buying a house for $119,300. They will make a 5% down payment. Their closing costs will total $2450. Their annual property tax is $3107 and their home owner’s insurance is $714 annually. How much money will they need up front?

   (a) (Optional) if Megan and Tom have a 30 year fixed rate mortgage at 3.9%, what will their monthly mortgage payments be?
   (Be careful, they aren’t borrowing $119,300)
(b) (Optional) If the monthly PMI is $35, what will Megan and Tom’s total PITI be?
(Be careful, some of the info from earlier in the question is still relevant)