Definitions:
- Front-end ratio – The ratio of the total monthly house payment gross monthly income
- Back-end – The ratio of the total monthly debt payments to gross monthly income

**Objective 1:** Use debt-to-income ratios to decide loan qualification

- The total monthly house payment includes the principal and the interest for the mortgage, the property taxes, and the home insurance
- This is called a PITI payment
- Factors for loan qualification
  - Front-end ratio should not exceed:
    - Conventional ≤ 0.28
    - FHA ≤ 0.29
  - Back-end ratio should not exceed:
    - Conventional ≤ 0.30
    - FHA ≤ 0.41
  - Credit score should be greater than 650

**Objective 2:** Calculate the maximum monthly PITI payment that meets the front-end ratio qualification for a loan

\[
\text{monthly PITI payment} = \frac{\text{Front-end ratio} \times \text{gross monthly income}}{\text{Front-end ratio}}
\]

**Objective 3:** Calculate the maximum debt that meets the back-end ratio qualification for a loan
Objective 4: Solve problems involving two objects moving in the same direction

- Just like in section 4.5 and 5.8, these problems have two relationships that we must translate into an equation

- Remember, to solve problems with two or more unknowns
  - Determine which unknown will be represented by a variable
    - Let the unknown that is being acted ON be the variable
  - Use one of the relationships to describe the other unknown(s) in terms of the variable
  - Use the other relationship to write an equation
  - Solve the equation