Section 2.2 (Simple Discount Versus Simple Interest)

• Rachael borrowed $4500 for one year from C. Perk Bank, the maturity value of the note was $5,000. Was this loan based on simple interest or simple discount?
• We can’t tell from the information given.

• **Assume it was a Simple Discount loan** and find the simple discount rate
  
  - \( D = $5000 - $4500 = $500 \)
  - \( M = $5000 \)
  - \( d =??? \)
  - \( T = 1 \) year

  - We can find the *Simple Discount Rate*
    \[
    D = M d T
    \]
    \[
    500 = 5000 * d * 1
    \]
    \[
    \frac{500}{5000} = d
    \]
    \[
    0.1 = d
    \]

  - So the Simple Discount Rate is 10%

• **Assume it was a Simple Interest loan** and find the simple interest rate
  
  - \( I = $5000 - $4500 = $500 \)
  - \( P = $4500 \)
  - \( R =??? \)
  - \( T = 1 \) year

  - We can find the *Simple Interest Rate*
    \[
    I = P R T
    \]
    \[
    500 = 4500 * R * 1
    \]
    \[
    \frac{500}{4500} = R
    \]
    \[
    0.111111... = R
    \]

  • So the Simple Interest Rate is 11.11%
1. Monica invested in bonds $14,100 in bonds whose maturity values totaled $15,000. The bonds had a term of 18 months, and a simple discount rate of 4%. What would the equivalent simple interest rate be?

2. (Optional) Gunther invested in a 1 year discount note with a face value of $1,000 face value and a simple discount rate of 5%. What would the equivalent simple interest rate be?

3. Ross is choosing between two investments. He planned to invest in a $5000 face value, 10 month simple discount note issued by A.Bank with a simple discount rate of 6.5%. But then company offered to borrow the same money from him for 6.75% simple interest. Which is a better deal for Ross?

4. (Optional) The Ralph Lauren company needs to borrow some money for 6 months so they can make clothing samples etc. They will be able to repay $100,000 at the end of the 6 months. They put Rachel in charge of determining where to borrow money from. Rachel found a $100,000 face value simple discount note with a term of 6 months and a simple discount rate of 8.2%. Being a diligent worker, Rachel also finds a loan with an 8.6% simple interest rate (for the same 6 month term). Which should Rachel choose?

5. Joey is expecting a $2000 royalty check from an acting gig in 1 week, but he needs money now. A Payday lender offers to cash the check now for a fee of 1.5% of the amount. Find the equivalent simple interest and simple discount rates.

6. (Optional) Phoebe is expecting a $600 royalty check from the ‘smelly cat’ single in 2 weeks, but she needs money now. A Payday lender offers to cash the check now for a fee of 0.5% of the amount plus an additional service fee of $5. Find the equivalent simple interest rate.