

# 8.12(A)

Solve real-world problems comparing how interest rate and loan length affect the cost of credit

**INTERVENE**

<1 min

# What is Credit?

What would you do if you only had 50 dollars in your pocket and bank account...



# And *life* happened...

Your car broke down  
and it costs 300  
dollars to repair



What if you just need money for something that you can't pay all at once?



50,000 dollars



20,000 dollars



200,000 dollars

# **You can borrow money from the bank**

- It's called getting credit.
- So basically, you just ask the bank if you can borrow money.
- They'll decide how much money they want to let you borrow and how they want you to pay it back.
- You, as a customer of the bank, should know how to compare the deals you get.

# Interest

- Banks won't generally give you free loans.
- You have to pay interest on those loans.
- This means that if I borrow 50 dollars from the bank today, and I don't pay it back in a month, I might owe 55 dollars instead of 50.
- **So, there's a cost of getting credit.**
- **Different banks will have different costs to letting you borrow their money.**

# Interest Rate

- Banks use “interest rates” to find out how much EXTRA money you owe them just for borrowing money.
- **Let’s say you need 5,000 dollars. The bank will give you 5,000 dollars to use but you will likely have to pay a sum of more than 5,000 dollars over the course of many months.**

# You get 2 offers

- You go to **Bank #1** down the street. “May I apply for a line of credit? I need \$5,000 to buy a car.”
  - They say, “Sure, we’ll let you borrow this money. We’ll give you credit. **The terms are: interest rate is 5% and you have to pay the amount back within 24 months (2 years).**”
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- You go to **Bank #2**. ““May I apply for a line of credit? I need \$5,000 to buy a car.”
  - They say, “Sure, we’ll let you borrow this money. We’ll give you credit. **The terms are: interest rate is 7% and you have to pay the amount back within 12 months (1 years)**”



# Which is the better deal?

Bank #1	Bank #2
Interest Rate: 5%	Interest Rate 7%
Principal: 5,000 dollars	Principal: 5,000 dollars
Time to payoff: 2 years	Time to payoff: 1 year
$I = (5,000)(0.05)(2) = \$500$	$I = (5,000)(0.07)(1) = \$350$

## ADDITIONAL INFORMATION

Pythagorean theorem

$$a^2 + b^2 = c^2$$

Simple interest

$$I = Prt$$

P = Principal amount      r = Interest rate      t = Number of periods.

Make sure your “r” interest rate is in the form of a decimal and “t” is in years)

# Bank 2 is a better deal

- You're only paying 350 dollars in interest with Bank 2 vs. 500 dollars in interest with Bank 1
- Generally, the higher the interest rate AND longer the time on loan, the worse the deal is for you.
- The lower the interest rate AND shorter the time to pay back, the better the deal is for you.

# Look at formulas!!

Simple interest

$$I = Prt$$

- P = Principal amount (Amount borrowed)
- r = Interest rate as a **DECIMAL**
- t = Number of **YEARS**. If they give you months, then divide by 12 to find how many years that is.

# I Do

Don't forget to convert to  
**YEARS** for “time” and  
**DECIMALS** for “interest  
rate”

Clarissa needs a \$2,500 loan in order to buy a car. Which loan option would allow her to pay the least amount of interest?

- A An 18-month loan with a 4.75% annual simple interest rate
- B A 30-month loan with a 4.00% annual simple interest rate
- C A 24-month loan with a 4.25% annual simple interest rate
- D A 36-month loan with a 4.50% annual simple interest rate

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Simple interest

$$I = Prt$$

<5 min

# We do - Question 1

Holly is taking out a loan in the amount of \$10,000. Her choices for the loan are a 4-year loan at 4% simple interest and a 6-year loan at 5% simple interest. What is the difference in the amount of interest Holly would have to pay for each of these two loans?

- A** \$1,600
- B** \$3,000
- C** \$4,600
- D** \$1,400

<5 min

# We Do – Question 2

Vinny needed \$12,000 to purchase a boat. When he visited the bank, he was presented with 4 options. Which option allows Vinny to pay the least amount of interest?

- A. A 72-month loan with a 1% annual simple interest rate.
- B. A 12-month loan with a 5% annual simple interest rate.
- C. A 24 -month loan with a 4% annual simple interest rate.
- D. A 36 -month loan with a 3% annual simple interest rate.

<5 min

## We do - Question 3

Betty bought furniture at the mall. She requested 20,000 dollars in credit to purchase furniture for her home. Two options stood out to her as better than the rest.

Option 1: 5% simple annual interest for 24 months.

Option 2: 3% simple annual interest for 30 months.

Which option allows Betty to pay the least amount of total interest?

- A. Option 2 is a better choice because Betty would pay \$500 less in interest than she would with Option 1.
- B. Option 2 is a better choice because Betty would pay \$1,500 less in interest than she would with Option 1.
- C. Option 1 is a better choice because even though her interest rate is higher, she will be paying interest for a shorter amount of time.
- D. Option 1 is a better choice because Betty will pay \$500 less in interest than she would with Option 2

<5 min

Which of the following statements about the cost of credit is true?

- A. The cost of credit is highest with a lower interest rate and a greater time period of loan payoff.
- B. The cost of credit is lowest with a higher interest rate and a minimal time period of loan payoff.
- C. The cost of credit is highest with a higher interest rate and a greater time period of loan payoff.
- D. The cost of credit is lowest with a lower interest rate and a greater time period of loan payoff.

1 min



Q5

Jacob is taking out a loan in the amount of \$15,000. His choices for the loan are a 5-year loan at 3% simple interest and 6-year loan at 4% simple interest. What is the difference in the amount of interest Jacob would have to pay for each of these loans?

- A. \$3600
- B. \$5,850
- C. \$1,350
- D. \$1,591

# You Do

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- Go back to Intervene to take your quiz!

# Answer Key 8.12A

- I Do - A
- We Do 1 - D
- We Do 2 - B
- We Do 3 - A
- We Do 4- C
- We Do 5- C