

Hi Financial Family! Here is this week's assignment! Please write down the key terms with the definitions in your journal. Go through and work the examples and then complete the applications for 4-2. I hope that you all are still doing well and if you need help or have questions please do not hesitate to contact me at kbird@kibesd.org or bird302apps@gmail.com. If you need calculators or a paper copy please let me know!

Key Terms

- promissory note
- principal
- annual percentage rate
- cosigner
- life insurance
- prepayment privilege
- prepayment penalty
- wage assignment
- wage garnishment
- balloon payment
- lending institution
- collateral

What Information Do You Need to Know before Taking out a Loan?

Whenever you borrow money, you must sign an agreement, called a **promissory note**, which states the conditions of the loan. Your signature is your promise to pay back the loan as outlined in the agreement. Always read an entire promissory note carefully before signing it.

The amount you borrow is the **principal**. The interest rate you pay is given per year and is the **annual percentage rate (APR)**. The promissory note contains information that the creditor is required to state, as stipulated in the *Truth in Lending Act*. This includes the principal, APR, monthly payment, number of payments that must be made, finance charge, due dates for each payment, and fees for late payments.

Not all loan agreements are the same, so each promissory note describes the features of that particular loan. Become familiar with the terms given below.

- **Cosigner** This person agrees to pay back the loan if the borrower is unable to do so. People without an established credit rating often need a cosigner.
- **Life Insurance** A creditor often requires a borrower to have life insurance that will cover the loan in the event the borrower dies before the loan is paid.
- **Prepayment Privilege** This feature allows the borrower to make payments before the due date to reduce the amount of interest.
- **Prepayment Penalty** This agreement requires borrowers to pay a fee if they wish to pay back an entire loan before the due date.

- **Wage Assignment** This is a voluntary deduction from an employee's paycheck, used to pay off debts. If a debtor's employer and the creditor agree, loans can be paid off using this form of electronic transfer.
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- **Wage Garnishment** This is an involuntary form of wage assignment, often enforced by court order. The employer deducts money from the employee's paycheck to pay the creditor.
 - **Balloon Payment** The last monthly payment on some loans can be much higher than the previous payments. These high payments are called balloon payments. Organizations that extend loans are called **lending institutions**. Lending institutions are businesses that make profit by charging interest. There are many types of lending institutions.
 - **Banks** Most consumers apply for loans at banks. *Savings banks* offer good interest rates but require loan applicants to have good credit ratings. *Commercial banks* are banks used by businesses, so they have large amounts of money to lend. They also require a good credit rating.
 - **Credit Unions** A credit union provides financial services for its members only. Members may work in the same office, be in the same profession, or live in the same apartment complex. Members deposit money in a credit union account. This money is made available to members who apply for loans from the credit union, usually at an interest rate that is lower than a bank can offer.
 - **Consumer Finance Companies** These businesses primarily lend money to people with poor credit ratings, who cannot get a loan anywhere else. High interest rates are charged for this service.
 - **Life Insurance Companies** Life insurance companies make loans to their policyholders. The amount that can be borrowed is based on the amount of life insurance purchased and the length of time the policy has been held. The interest rate is good because the life insurance company is not taking a tremendous risk because if the loan is not paid back, it can be deducted from the life insurance benefit when it is paid.
 - **Pawnshops** Pawnshops are known for small, quick loans. A customer who needs money leaves a personal belonging, called **collateral**, with the pawn broker in exchange for the loan. Most loans are 30-, 60-, or 90-day loans. When the debtor returns with the principal plus interest, the collateral is returned.

You may have seen *loan sharks* in the movies. Loan sharks charge extremely high interest rates and do not formally check your credit rating. Loan sharking is illegal. Regardless of where you shop for a loan, the *Equal Credit Opportunity Act* requires a creditor to treat you fairly. If your application is turned down, you are protected by the *Fair Credit Reporting Act* which says that the lender must give you the reason in writing for the loan denial. Always compare the terms of the loan and the annual percentage rates when shopping for a loan.

Skills and Strategies

Monthly loan payments are computed using a formula. Payment information is often arranged in tables to make it easy for customers.

Table of Monthly Payments per \$1,000 of Principal

Rate	1 yr	2 yr	3 yr	4 yr	5 yr	10 yr		Rate	1 yr	2 yr	3 yr	4 yr	5 yr	10 yr
6.50%	86.30	44.55	30.65	23.71	19.57	11.35		10.00%	87.92	46.14	32.27	25.36	21.25	13.22
6.75%	86.41	44.66	30.76	23.83	19.68	11.48		10.25%	88.03	46.26	32.38	25.48	21.37	13.35
7.00%	86.53	44.77	30.88	23.95	19.80	11.61		10.50%	88.15	46.38	32.50	25.60	21.49	13.49
7.25%	86.64	44.89	30.99	24.06	19.92	11.74		10.75%	88.27	46.49	32.62	25.72	21.62	13.63
7.50%	86.76	45.00	31.11	24.18	20.04	11.87		11.00%	88.38	46.61	32.74	25.85	21.74	13.78
7.75%	86.87	45.11	31.22	24.30	20.16	12.00		11.25%	88.50	46.72	32.86	25.97	21.87	13.92
8.00%	86.99	45.23	31.34	24.41	20.28	12.13		11.50%	88.62	46.84	32.98	26.09	21.99	14.06
8.25%	87.10	45.34	31.45	24.53	20.40	12.27		11.75%	88.73	46.96	33.10	26.21	22.12	14.20
8.50%	87.22	45.46	31.57	24.65	20.52	12.40		12.00%	88.85	47.07	33.21	26.33	22.24	14.35
8.75%	87.34	45.57	31.68	24.77	20.64	12.53		12.25%	88.97	47.19	33.33	26.46	22.37	14.49
9.00%	87.45	45.68	31.80	24.89	20.76	12.67		12.50%	89.08	47.31	33.45	26.58	22.50	14.64
9.25%	87.57	45.80	31.92	25.00	20.88	12.80		12.75%	89.20	47.42	33.57	26.70	22.63	14.78
9.50%	87.68	45.91	32.03	25.12	21.00	12.94		13.00%	89.32	47.54	33.69	26.83	22.75	14.93
9.75%	87.80	46.03	32.15	25.24	21.12	13.08		13.25%	89.43	47.66	33.81	26.95	22.88	15.08

Example 1

What is the monthly payment for a \$4,000 two-year loan with an APR of 8.50%?

SOLUTION The table lists monthly costs per \$1,000 borrowed. Divide the amount you want to borrow by 1,000. Look across the row labeled 8.50% and down the column labeled 2 yr. The monthly cost per thousand dollars borrowed is \$45.46. You are borrowing 4 sets of \$1,000, so the table amount must be multiplied by 4.

$$45.46 \times 4 = 181.84$$

The monthly payment is \$181.84.

Example 2

What is the total amount of the monthly payments for a \$4,000, two-year loan with an APR of 8.50%?

SOLUTION There are 12 months in a year, so the borrower will make 24 monthly payments in two years. Use the monthly payment from Example 1, \$181.84.

Multiply monthly payment by 24.

$$181.84 \times 24 = 4,364.16$$

The total amount of monthly payments is \$4,364.16.

Example 3

Find the finance charge for a \$4,000, two-year loan with an 8.5% APR?

SOLUTION Use the total amount of monthly payments from Example 2 and subtract the borrowed amount.

$$4,364.16 - 4,000 = 364.16$$

The finance charge for this loan is \$364.16.

Example 4

Mark bought a new car. The total amount he needs to borrow is \$28,716. He plans on taking out a 4-year loan at an APR of 5.12%. What is the monthly payment?

SOLUTION Mark must use the monthly payment formula.

Monthly Payment Formula

$$M = \frac{p \left(\frac{r}{12} \right) \left(1 + \frac{r}{12} \right)^{12t}}{\left(1 + \frac{r}{12} \right)^{12t} - 1}$$

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where M = monthly payment

p = principal

r = interest rate

t = number of years

Substitute $p = 28,716$, $r = 0.0512$, and $t = 4$.

$$M = \frac{28,716 \left(\frac{0.0512}{12} \right) \left(1 + \frac{0.0512}{12} \right)^{12(4)}}{\left(1 + \frac{0.0512}{12} \right)^{12(4)} - 1}$$

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Simplify the exponent to make calculator entry easier.

$$M = \frac{28,716 \left(\frac{0.0512}{12} \right) \left(1 + \frac{0.0512}{12} \right)^{48}}{\left(1 + \frac{0.0512}{12} \right)^{48} - 1}$$

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Use your calculator. Enter in one keystroke sequence, but work slowly and carefully. Round to the nearest cent.

Below is how you enter it into your calculator!

```
( 28716 ( .0512/12 )  
( 1+.0512/12 ) ^48 )  
/ ( ( 1+.0512/12 ) ^4  
8-1 )
```

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The monthly payment is \$662.87.

NAME: _____

Applications 4.2

1. Arrange the following lending institutions in descending order according to their APRs for a \$10,000, two-year loan.

East Meadow Savings $9\frac{1}{2}\%$

Clinton Park Credit Union 9%

Tivoli Trust $9\frac{3}{8}\%$

First Bank of Rhinecliff 9.45%

Columbia Consumer Finance Corp. $9\frac{9}{16}\%$

2. How many more monthly payments are made for a five-year loan than for a two-year loan?

3. How many monthly payments must be made for a $2\frac{1}{2}$ year loan?

5. Bart needs to borrow \$7,000 from a local bank. He compares the monthly payments for a 9.75% loan for three different periods of time.

a. What is the monthly payment for a one-year loan?

b. What is the monthly payment for a three-year loan?

c. What is the monthly payment for a five-year loan?

6. Rachel has a \$10,000, three-year loan with an APR of 7.25%.

a. What is the monthly payment?

b. What is the total amount of the monthly payments?

c. What is the finance charge?

7. Melissa wants to check the accuracy of the finance charge on her promissory note. She has a \$6,000, four-year loan at an APR of 10%.

a. What is the monthly payment?

b. What is the total amount of the monthly payments?

c. What is the finance charge?

8. The policy of the Broadway Pawnshop is to lend up to 35% of the value of a borrower's collateral. John wants to use a \$3,000 ring and a \$1,200 necklace as collateral for a loan. What is the maximum amount that he could borrow from Broadway?

9. Juliana is taking out an \$8,700, $3\frac{1}{2}$ -year loan with an APR of 9.31%. What will be the monthly payment for this loan?

10. Lavonda took out a \$7,500 loan with an APR of 6.875% and agreed to pay it back monthly over six years. How many monthly payments did she make?

11. Solomon is taking out a \$15,320, two-year loan with an APR of 10.29%. What will be the finance charge for this loan to the nearest dollar?

12. Reggie needs a quick x-dollar loan, just until his next payday in two weeks to take advantage of a sale on ski equipment. The bank would take too long in paperwork, so he goes to a pawnshop. The pawnshop will only lend him 25% of the value of his collateral. Express algebraically the amount of collateral Reggie must use for this loan.

13. Olivia is considering membership to the Regional Teachers Credit Union so that she can save money on a loan. The credit union will lend her \$8,000 for three years at 8.25% APR. The same loan at her savings bank has an APR of 10.5%. How much would Olivia save in finance charges if she joined the credit union and took out her loan there? Round to the nearest ten dollars.

14. Rob wants to purchase a \$5,000 drum set. The music store offers him a two-year installment agreement requiring \$800 down and monthly payments of \$202.50. Rob has a poor credit rating.

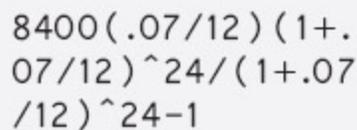
a. What is his interest on this installment agreement?

b. Instead of using the store's installment plan, Rob can borrow \$5,000 at an APR of 13% from a local consumer finance company. What would be the monthly payment for this loan using the table?

c. How much interest would the finance company charge?

d. Should Rob use the installment plan or borrow the money from the finance company?

15. Lee wanted to compute the monthly payment on a 2-year, \$8,400 loan at an APR of 7%. She entered the keystrokes on her calculator at the right. The display gives an answer of 48, which Lee knows is incorrect. Explain what was incorrectly entered.



8400(.07/12)(1+.07/12)²⁴/(1+.07/12)²⁴-1

16. A loan used for buying a home is called a mortgage. The Fortunato family is buying a \$430,000 home. They are taking out a 30-year mortgage at a rate of 8%.

a. Compute the monthly payment.

b. Find the total of all of the monthly payments for the 30 years.

c. What is the finance charge?

d. Which is greater, the interest or the original cost of the home?