

Rate Type Detectives

Sort student loans by what happens to their interest rate.

MA.912.FL.3.7 "Compare the advantages and disadvantages of different types of student loans by manipulating a variety of variables and calculating the total cost using spreadsheets and other technology."

NAME _____

DATE _____

FIXED-RATE LOAN

A fixed-rate loan keeps the same interest rate for the life of the loan. This makes future interest costs easier to predict.

A \$2,500 loan has a 5.0% rate written into the agreement until the final payment.

VARIABLE-RATE LOAN

A variable-rate loan can have an interest rate that changes over time. Its future interest costs can rise or fall.

A \$1,200 loan is tied to a financial index, so its rate may be updated each quarter.

1 SORT _____ 8 items

For each loan, circle FIXED or VARIABLE, then choose two items and explain which rate detail helped you sort each one.

- | | | | |
|----|--|-----------------------------|--------------------------------|
| 1. | The interest rate is locked at 4.75% from disbursement through payoff. | ☐ FIXED | ☐ VARIABLE |
| 2. | The rate starts at 3.9% and is reviewed each January, so it may rise or fall. | ☐ FIXED | ☐ VARIABLE |
| 3. | Interest changes when the lender's published index changes. | ☐ FIXED | ☐ VARIABLE |
| 4. | The contract guarantees a 6.2% interest rate for all 10 years. | ☐ FIXED | ☐ VARIABLE |
| 5. | Monthly payments are based on a 5.4% interest rate that will not be adjusted. | ☐ FIXED | ☐ VARIABLE |
| 6. | No matter what happens to market rates, this loan remains at 7.0%. | ☐ FIXED | ☐ VARIABLE |
| 7. | After the first year, the interest rate can reset every six months. | ☐ FIXED | ☐ VARIABLE |
| 8. | The borrower signs for a 4.3% rate that stays unchanged until the balance is paid. | ☐ FIXED | ☐ VARIABLE |

2

PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM #

HOW I KNEW

ITEM #

HOW I KNEW

3

MAKE YOUR OWN

One of each

Write one new example of a FIXED loan and one new example of a VARIABLE loan.

FIXED

VARIABLE

CHALLENGE

In a spreadsheet, compare two \$6,000 loans with principal paid at the end of 3 years and simple interest: Loan A has a fixed 5% annual rate, while Loan B has yearly rates of 3%, 5%, and 7%; calculate each loan's total cost and identify the lower-cost loan.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	The interest rate is locked at 4.75% from disbursement through payoff.	FIXED	The rate is locked for the entire loan.
2	The rate starts at 3.9% and is reviewed each January, so it may rise or fall.	VARIABLE	The rate may change during the loan.
3	Interest changes when the lender's published index changes.	VARIABLE	The interest rate is connected to an index that can change.
4	The contract guarantees a 6.2% interest rate for all 10 years.	FIXED	The contract guarantees one rate for the full term.
5	Monthly payments are based on a 5.4% interest rate that will not be adjusted.	FIXED	The rate will not be adjusted.
6	No matter what happens to market rates, this loan remains at 7.0%.	FIXED	Market changes will not change this rate.
7	After the first year, the interest rate can reset every six months.	VARIABLE	The rate can reset, or change, every six months.
8	The borrower signs for a 4.3% rate that stays unchanged until the balance is paid.	FIXED	The rate stays unchanged until payoff.

PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **FIXED:** A 2.8% rate is guaranteed from the first payment to the last payment.
- **VARIABLE:** The loan rate is recalculated every March using a market index.

Challenge: Loan A interest: $\$6,000 \times 0.05 \times 3 = \900 , so total cost = $\$6,900$. Loan B interest: $\$180 + \$300 + \$420 = \900 , so total cost = $\$6,900$. Neither loan costs less because the total costs are equal.

Sort answers are 1 FIXED, 2 VARIABLE, 3 VARIABLE, 4 FIXED, 5 FIXED, 6 FIXED, 7 VARIABLE, 8 FIXED. For Part 2, accept explanations that identify whether the rate stays the same or can change.