Student Activity: Interest and Depreciation

Step 1: Think of an asset you might like to acquire after graduation.

Step 2: Find the estimated worth of this asset, estimate a reasonable down payment (no down payment is an option), estimate the term of the loan, and “finance” the rest using a hypothetical interest rate. To find an interest rate, you can search for average interest rates online or ask your teacher.

Step 3: Use the information you have found and plug it in to the amortization table provided. The table should automatically change to give you the breakdown of your monthly payments. After finding this information, write it down on the worksheet provided.

Step 4: Without changing anything else, increase your interest rate by 1 (ex: 4.5 would change to 5.5). Write the new payment information down in the worksheet provided.

Step 5: Now lower the time period on the loan by 2 years. Since your payment is monthly, this will be by 24 months. Write the new payment information down in the worksheet provided.

Step 6: Depreciate your chosen asset using straight-line depreciation. To do so, you will have to know the beginning worth of your asset, the salvage value of your asset, as well as the useful life of your asset. (To get a good idea of these values, you might find the estimated worth of your same asset that is 10 years older than it is now.) Record this information on the worksheet provided.

Interest and Depreciation Worksheet

Chosen Asset: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Estimated Worth of Chosen Asset: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Down Payment (Not included on table): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Loan Amount: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Amortization Table Information 1**

Annual Interest Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Term of Loan in Years: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Monthly Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Interest Paid: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Amortization Table Information 2**

Annual Interest Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Term of Loan in Years: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Monthly Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Interest Paid: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Amortization Table Information 3**

Annual Interest Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Term of Loan in Years: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Monthly Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Payments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Interest Paid: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

$$Depreciation= \frac{Cost -Salvage Value}{Useful Life} $$

**Depreciation Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Period** | **Depreciation** | **Book Value** | **Accumulated Depreciation** |
| **1** |  |  |  |
| **2** |  |  |  |
| **3** |  |  |  |
| **4** |  |  |  |
| **5** |  |  |  |
| **6** |  |  |  |
| **7** |  |  |  |
| **8** |  |  |  |
| **9** |  |  |  |
| **10** |  |  |  |
| **11** |  |  |  |
| **12** |  |  |  |
| **13** |  |  |  |
| **14** |  |  |  |
| **15** |  |  |  |

**Test Your Knowledge**

1. Which amortization option gave you the best deal on your asset?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Does the interest rate on a loan make a significant difference in the total amount paid?

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3. Using your asset as reference, is it better to have more or fewer payments? Why?

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4. Were you surprised at how fast the worth of your asset decreased? Explain.

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5. How can using amortization schedules and depreciation tables help us make decisions about purchases before making them?

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6. Go back to your amortization table and look at each payment over the loan term. What is the relationship of the principal paid versus the interest paid? Why do you think this is?

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SIMPLE INTEREST PRACTICE

1. Richard deposited $5,500 for 6 years on 2.40% interest rate in his saving account. How much simple interest will he earn?

2. Principal = $47,300, Rate = 3%, Time = 4 months. What will that total principal + interest payment be?

3. Andrew borrows $79,500 for 5 months on 6.30% interest rate in his saving account. Calculate the simple interest?

4. John wants to open a showroom. He borrows $48,000 on 12% interest rate. He plans to pay this after 4 years. What will that total principal + interest payment be?

COMPOUND INTEREST PRACTICE

1.) Your 3 year investment of $20,000 received 5.2% interested compounded semi-annually. What is your total return?

2.) You invest $1,900 at 4% and it’s compounded semi-annually for 3 years. How much will your $1,900 be worth in 3 years?

3.) Your allowance of $190 got 11% interest compounded monthly for 1 2/3 years. What’s it worth after the 1 2/3 years?

4.) Your $440 gets 5.8% interest compounded annually for 8 years. What will your $440 be worth in 8 years?

CONTINUOUS INTEREST PRACTICE

1. If you invest $1,000 at an annual interest rate of 5% compounded continuously, calculate the final amount you will have in the account after five years.

2. If you invest $500 at an annual interest rate of 10% compounded continuously, calculate the final amount you will have in the account after five years.

3. If you invest $2,000 at an annual interest rate of 13% compounded continuously, calculate the final amount you will have in the account after 20 years.

4. If you invest $20,000 at an annual interest rate of 1% compounded continuously, calculate the final amount you will have in the account after 20 years.

**DEPRECIATION PRACTICE PROBLEMS**

1. A fixed asset that costs $30,000, is expected to last 10 years, and its "salvage value" is $3,000. Determine the amount of depreciation per year using straight-line depreciation

2. You would like to buy a new car, but would first like to see how much this car will depreciate in value after 10 years. The car initially costs $28,000.00, and you find that the same year model that is 10 years older typically sells for $7,500.00. Determine the amount of depreciation per year using straight-line depreciation.

3. A computer set is estimated to depreciate at a rate of $1,500.00/year. The set initially costs $8,000. How many years does it take to depreciate to the salvage value of $500?

4. A scientific microscope set has been sold at a value of $1,000. The set is known to be four years old, and was depreciated using straight-line depreciation at $3,500/year. What was the original price of the microscope set?