Consumer Credit   NAME:

There are two types of consumer credit we will study, closed-end credit and open-end credit. **Closed-end credit** refers to when you purchase an item and you pay monthly payments until the balance (the amount you owe) is zero. There is a specific end to your payments. **Open-end credit** is just that, there may be no end. Credit cards are an example of open-end credit. You make initial purchases and pay off some or all of the debt, but you can make more purchases and add to the debt. The end (when the balance is paid off) may change, depending on if you make more purchases.

Round your answers to two decimal places because it's money.

Closed-end credit example:

1. Bob buys a big screen TV for $1500. He will pay an add-on interest fee of 5% in addition to the cost of the TV. He will pay the TV off by making monthly payments over the next two years. How much is his monthly payment and how much total is he paying for the TV? We will do this together in small steps.

a.) Add-on interest is found by applying the simple interest formula, $I = P * r * t$. Find the add-on interest he is charged using 1500 for P, .05 for r, and 2 for t.

b.) Add this add-on interest to the cost of the TV to find the total amount he is paying for the TV.

c.) He will pay this amount in equal monthly installments for 2 years, or 24 months. Find his monthly payment.

Open-end credit example #1:

2. The total amount you owe (balance) on your credit card bill is your total purchases plus the interest for those purchases. Usually, credit card bills are sent out monthly and so they quote you a monthly interest rate like 1.2%. Of course, to figure out how much you owe, they subtract any payments (or returns) you made from the previous balance. Let's figure out a sample bill. Let's say we are charged 1.2% per month on the unpaid balance. The information in the table below shows the purchases for the first few months of a credit card bill. We will fill in the blanks. The finance charge is the interest they charge, which is found by multiplying the balance for that month times 1.2% or .012.

Month	Unpaid balance at beginning of month (add)	Finance charge (add)	Purchases during month (add)	Returns during month (minus)	Payments (minus)	Unpaid balance at end of month
June	$0		$500	$45	$50	
July			$400	$150	$50	
August			$100	$0	$50	

Open-end credit example #2:

3. Usually credit is not that simple because instead of calculating interest on the amount you owe at the beginning of the month, they calculate it using the average daily balance. The **average daily balance** is found by adding up the balances of each day and then dividing by the number of days in the billing period, usually 31. We'll work a problem using this method of credit together. Follow the steps.

Susanna has the following credit card statement.

Date	Transaction
March 3 (billing date)	none (previous balance = $209.46)
March 12	payment $50
March 17	charge $28.46
March 20	charge $31.22
April 1	charge $59.10

a.) Notice the daily balances are noted below for each day between March 3 and Aril 3. To find the average daily balance, we'll add all of these daily balances and then divide by 31.

Date	Daily Balance
March 3 (billing date)	$209.46
March 4	$209.46
March 5	$209.46
March 6	$209.46
March 7	$209.46
March 8	$209.46
March 9	$209.46
March 10	$209.46
March 11	$209.46
March 12	$159.46 (paid $50)
March 13	$159.46
March 14	$159.46
March 15	$159.46
March 16	$159.46
March 17	$187.92 (charged $28.46)
March 18	$187.92
March 19	$187.92
March 20	$219.14 (charged $31.22)
March 21	$219.14
March 22	$219.14
March 23	$219.14
March 24	$219.14
March 25	$219.14
March 26	$219.14

For 9 days, the balance is $209.46.

For 5 days, the balance is $159.46.

For 3 days, the balance is $187.92.

For 12 days, the balance is $219.14.

March 27	$219.14
March 28	$219.14
March 29	$219.14
March 30	$219.14
March 31	$219.14
April 1	$278.24 (charged $59.10)
April 2	$278.24
April 3 (billing date)	???

For 2 days, the balance is $278.24.

The daily balance is found by adding all these daily balances up and dividing by 31 (number of days from March 3 to April 2). Try to understand why the following works.

$$\frac{209.46*9+159.46*5+187.92*3+219.14*12+278.24*2}{31} = \frac{6432.36}{31} = 207.50$$

So, the average daily balance is $207.50. This is the amount we will use to figure the interest the bank will charge.

b.) Let's say Susanna's credit card has an interest rate of 1.3% per month on the average daily balance. We'll take 1.3% of $207.50 to find the interest she is charged this month. Do this now.

c.) Add the interest from above to the balance of $278.24 (her balance on April 2) to get her total balance due.

Open-end credit example #3:

4. Robert has a charge card that charges 2.1% interest per month on the average daily balance. Below is a table that shows his balances and totals for October 4 through November 1. Find the average daily balance for this month and then use it to calculate the amount of his balance on November 4, the next billing date. We will do this in steps.

Date	Transaction	Balance	# of days the balance stood
October 4 (billing date)	none – balance $350.48	$350.48	8
October 12	charge $45.43		
October 16	payment $100		
October 23	charge $56		
October 27	charge $15.97		
November 1	payment $50		
November 4 (billing date)	????		---

a.) For each date listed, find the balance using the charges and payments above. Use the table to organize the information.

b.) Figure how many days each balance stood for. As an example, the balance was $350.48 from October 4 to October 11. So the balance was $350.48 for 8 days. Use the table to organize the information.

c.) Find the average daily balance.

d.) Find the interest he will be charged. This is 2.1% of the average daily balance. Remember to change the 2.1% to decimal form (.021) before multiplying.

e.) Add the interest to the balance you have for November 1. This is his balance for November 4.