Name: Key   **Class:** _____   **Date:** _____   **ID: A**

Financial Algebra Chapter 4 Review

1. The ending balance on Ms. Harris's Visa Card was $1,256, the average daily balance was $825, and the monthly periodic rate is 2.25%. How much is the finance charge?

$$825 \cdot (.0225) = \$18.56$$

2. Billy borrowed $30,000 for a car for 10 years at an APR of 7.25%. What will his monthly payment be?

$$M = \left(30000\left(\frac{.0725}{12}\right)\left(1 + \frac{.0725}{12}\right)^{(12 \cdot 10)}\right) \Big/ \left(\left(1 + \frac{.0725}{12}\right)^{(12 \cdot 10)} - 1\right) = \$352.20$$

3. What is the total interest on a five-year 5.2% loan with a principal of $10,000 be?

$$M = \left(10000\left(.052/12\right)\left(1 + \frac{.052}{12}\right)\right)^{(12 \cdot 5)} \Big/ \left(\left(1 + \left(\frac{.052}{12}\right)\right)^{(12 \cdot 5)} - 1\right) = 11377.80$$

$$\$1377.80$$

$$\$189.63 \Rightarrow 6$$
$$11377.80$$

4. Caden found a car he wants to buy that costs $25,000. He can afford to pay $350 a month for the car. His bank offers him a car loan of 7.3%. What should the length of the loan be?

$$t = \frac{\ln\left(\frac{350}{25000}\right) - \left(\ln\left(\frac{350}{25000}\right) - \frac{.073}{12}\right)}{12\ln\left(1 + \frac{.073}{12}\right)} = 17.8 \text{ years}$$

5. Use the summary section of the monthly credit card statement below to calculate the finance charge.

SUMMARY	Previous Balance	Payments / Credits	Transactions	Late Charge	Finance Charge	New Balance	Minimum Payment
	$750.00	$70.00	$110.00	$0.00	?		$40.00
	Average Daily Balance	# Days in Billing Cycle				APR	Monthly Periodic Rate
	$805.00	30				15%	1.25%

   a. $33.54   c. $10.06
   b. $12.98   d. $9.38

$$(805.00)(.0125) = \$10.0625$$

6. Jerry buys a $2,700 motorcycle on a deferred payment plan. There is no down payment and no interest for eighteen months. Jerry must make a minimum payment of $75 a month. To avoid a retroactive APR of 21%, he must pay the balance in full before the 18 months has passed. If he pays $75 each month, how much should he pay the last month to avoid the interest charges?

   a. $1,350   c. $1,500
   b. $1,425   d. $2,075

17 of $75
1 of ?

$$17 \cdot 75 + X = 2700$$
$$X = 1425$$

7. Mantago wants to borrow $10,000 to buy a used car. He examined his budget and decides that he can afford a payment of $200 a month. If his bank offers him an APR of 7.5%, how long should he borrow the money so he can afford his monthly payment?

   a. 3.5 years   c. 4.5 years
   b. 4 years   d. 5 years

$$t = \frac{\ln\left(\frac{200}{10000}\right) - \left(\ln\left(\frac{200}{10000} - \frac{.075}{12}\right)\right)}{12\ln\left(1 + \left(\frac{.075}{12}\right)\right)}$$

8. Lisa made this spreadsheet to compare her options when she decided to purchase a living room set on an installment plan.

	A	B	C	D	E	F
1	Purchase Price	Down Payment	Monthly Payment	Time in Months	Total of Payments	Finance Charges
2	$2,300.00	$200.00	$125.00	24	$3,000.00	$
3	$1,700.00	$200.00	$100.00	18	$1,800.00	$
4	$2,500.00	$200.00	$140.00	20	$2,800.00	$

   What spreadsheet formula should she input into F2?
   a. E2 – A2 – B2   c. E2 – A2
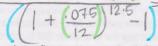   b. A2 – E2 + B2   d. A2 + E2

9. Isabella wants to purchase a new refrigerator. When she applies for an installment loan at the appliance store, her loan application is turned down. What consumer law says that a lender must give her the reason, in writing, that she was denied the loan?
   a. Truth-in-Lending Act   c. Fair Credit Reporting Act
   b. Equal Opportunity Act   d. Fair Debt Collection Practices Act

10. Dr. Drake is thinking about retirement and decides to sail around the world once he retires. He buys a sailboat for $125,000. He borrows the money at an APR of 7.5% for five years. What will his total interest be?
    a. $46,875.30   c. $25,284.61
    b. $36,875.40   d. $17,388.80

$$M = \frac{125000\left(\frac{.075}{12}\right)\left(1 + \left(\frac{.075}{12}\right)^{12\cdot5}\right)}{\left(\left(1 + \left(\frac{.075}{12}\right)\right)^{12\cdot5} - 1\right)}$$

$\Sigma M = 2504.74 \cdot 60 = 150284$
$- 125000$

11. Lucy and Ricky Ricardo do not pay their credit card in full each month, so they incur finance charges. On their last credit card statement, the average daily balance is $900 and the monthly periodic rate is 2.25%. What should be the finance charge on the statement?
    a. $19.69   c. $87.50
    b. $20.25   d. $196.88

$(900)(.0225)$

$$M = \frac{10000\left(\frac{.115}{12}\right)\left(1+\left(\frac{.115}{12}\right)^{12\cdot5}\right)}{\left(\left(1+\left(\frac{.115}{12}\right)^{12\cdot5}-1\right)\right)} = 219.92 \cdot 60 = 202.76$$

12. Two consumers borrowed $10,000 for five years. Bob has a credit score of 650 and has an interest rate of 11.5%, while Tyree has a credit score of 710 and has an interest rate of 8.0%. What will be the total difference between what the two men pay?

   a. $1,030.20
   b. $2,165.40
   c. $2,195.60
   d. $3,195.80

   Bob 13195.20
   Tyree 12165.83

13. Rick carries a balance on his credit card each month. Today is the first day of the new, 28-day billing cycle. The current balance is $2,360 and the APR is 21%. Rick is buying a friend an expensive gift that costs $1,500 that he plans to put on his credit card. This will be his only purchase this month. How much in finance charges can he save by making the purchase on the last day of the billing cycle versus the first day of the billing cycle?

   Final Answer
   $25.31

   Beginning of Month   ADB $67.55   End $42.23   ADB
   28 days of 2360+1500 = 3860 · $\frac{.21}{13}$ 27 of 2360 + 1 of 3860   2413.57

14. Trey is taking out a loan for $85,000. It is a 20-year loan with an APR of 5.85% What will his monthly payment be?

$$M = \frac{85000\left(\frac{.0585}{12}\right)\left(1+\frac{.0585}{12}\right)^{12\cdot20}}{\left(\left(1+\frac{.0585}{12}\right)^{12\cdot20}-1\right)} = \$601.63$$

15. Loretta was on vacation when her wallet was stolen. By the time she reported her 3 credit cards missing, the criminal had charged over $10,000 on each card. How much of this will Loretta have to pay?

   $150

16. Miriam and Dave want to borrow $25,000 to put an addition on their house. They went over their budget, and they can afford to pay $450 a month. If the bank offers them a home improvement loan with an APR of 6.3%, what should the length of the loan be so they can afford the monthly payments?

$$t = \ln\left(\frac{450}{25000}\right) - \left(\ln\left(\frac{450}{25000}-\frac{.063}{12}\right)\right) / 12\ln\left(1+\frac{.063}{12}\right) = 5.5\ years$$

17. Juhee carries a balance on her credit card each month. In May, she decides she wants to use her card to buy a new graphing calculator. What part of the month would accrue the most in finance charges? Why?

   The beginning because the Average Daily Balance will be higher

18. Jamal is going to borrow $14,000 from his credit union to buy a used car. The APR is 7.0% and the length of the loan is 4 years. How much will Jamal pay in interest?

$$M = \frac{14000\left(\frac{.07}{12}\right)\left(1+\frac{.07}{12}\right)^{12\cdot4}}{\left(\left(1+\frac{.07}{12}\right)^{12\cdot4}-1\right)} = 335.25 \cdot 48\ months$$
$$= 16091.88$$
$$-14000$$
$$\$2091.87$$

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