

## Quiz 2

Every answer must be fully justified. Show your work!!!

1. Suppose that Johann buys a new couch that is priced at \$750. He pays \$100 down and finances the rest by paying \$30 each month for the next 2 years.

- (a) What is the total installment price for this purchase?

$$\begin{aligned} \text{Total installment price} &= \text{down payment} + \text{all monthly payments} \\ &= 100 + (30)(12)(2) \\ &= \$820.00 \end{aligned}$$

- (b) What is the finance charge?

$$\begin{aligned} \text{Finance charge} &= \text{total installment price} - \text{price of item} \\ &= 820 - 750 \\ &= \$70 \end{aligned}$$

2. Suppose you receive a credit card statement for the time period from April 1 - April 30. The unpaid balance on April 1 was \$400. A payment of \$250 was recorded on April 12. A \$30 purchase was made on April 5 and a \$100 purchase was made on April 25. The monthly rate for this card is 1.4% and interest is computed using the unpaid balance method.

- (a) What is the interest for the time period covered by this statement?

$$\begin{aligned} \text{Interest} &= (400 - 250)(0.014) \\ &= \$2.10 \end{aligned}$$

- (b) What is the total balance owed for this card on April 30?

$$\begin{aligned} \text{Total balance owed} &= 400 - 250 + 30 + 100 + 2.10 \\ &= \$282.10 \end{aligned}$$

- (c) What is the average daily balance from April 1 - April 30?

Balance	# of days	Product
\$400	4	1600
\$430	7	3010
\$180	13	2340
\$280	6	1680
Total:	30	8630

$$\text{Average daily balance} = \frac{8630}{30} = \$287.67$$

3. Let  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ ,  $A = \{2, 4, 6, 8\}$ ,  $B = \{1, 2, 3, 4, 5\}$ . Find each of the following.

a.  $A'$

$$A' = \{1, 3, 5, 7, 9, 10\}$$

b.  $A \cup B$

$$A \cup B = \{1, 2, 3, 4, 5, 6, 8\}$$

c.  $A' \cap B$

$$A' \cap B = \{1, 3, 5\}$$

d.  $B \cap \emptyset$

$$B \cap \emptyset = \emptyset$$

e. The number of subsets of the set  $B$ .

$$\text{There are } 2^5 = 32 \text{ subsets of } B.$$