Name_____

MCC Math 132 Business Math Final Exam April 29, 2024

PLEASE READ: This exam is intended to be completed in 1/2 hour (30 minutes) but you will be allowed the full class time. This means all students are given extra time, regardless of whether you are on accommodations or not. ***Pay attention to point value on questions***!

1. (40 pts) Please read but do not check any of the boxes.

For grading purposes only. ***Professor will check the box*** for the appropriate number of the Excel Labs that have been submitted (as of end of the day Friday, May 3) in the second half of the course. In addition to the lab grade of 20 points per lab, here you earn an ***extra*** 10 points per lab just for submitting a valid attempt. It's 10 points or none each.

- ☐ all four labs have been completed
- ☐ 3 out of 4 labs have been completed
- ☐ 2 out of 4 labs have been completed
- ☐ 1 out of 4 labs has been completed
- ☐ none of the labs have been completed

2. (4 pts)

The first few rows of a loan payment schedule is shown. What type of loan is it?

Interest Rate	Loan Amount	Number of Months	Total Of All Payments
8%	$23,000.00	30	$ 27,600.00
Payment Number	**Interest**	**Principal**	**Balance**
			$23,000.00
1	$153.33	$766.67	$22,233.33
2	$153.33	$766.67	$21,466.67
3	$153.33	$766.67	$20,700.00
4	$153.33	$766.67	$19,933.33
5	$153.33	$766.67	$19,166.67

A. Compound interest loan

B. Simple interest loan

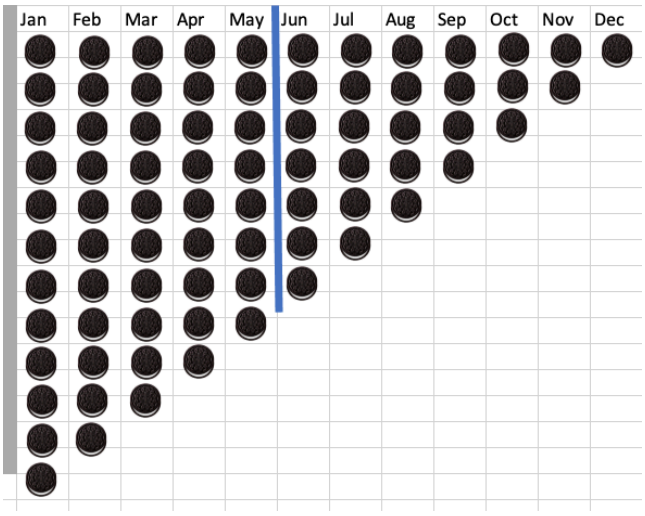
C. Rule of 78 loan

D. It cannot be determined by the information shown.

ANSWER: _____

3. (4 pts)

This graphic illustrates 12 months of interest payments for a certain type of loan. What type of loan is it?



A. Compound interest loan

B. Simple interest loan

C. Rule of 78 loan

D. It cannot be determined by the information shown.

ANSWER: _____

4. (4 pts)

A fully amortized loan is one in which the borrower only pays interest on the remaining balance. The first few rows of each payment are shown here. What type of loan is this?

	A	B	C	D	E
2	Balance	Interest Rate	Years	Payments/Year	Payment
3	$23,000.00	8.00%	2.5	12	$848.43
4	Pmt #	Payment	Interest Portion	Balance Portion	Remaining Balance
5		"=E$3"	"=E6*B$3/D$3"	"=B7-C7"	"=A3"
6					$23,000.00
7	1	$848.43	$153.33	$695.10	$22,304.90
8	2	$848.43	$148.70	$699.73	$21,605.17
9	3	$848.43	$144.03	$704.40	$20,900.77
10	4	$848.43	$139.34	$709.09	$20,191.68
11	5	$848.43	$134.61	$713.82	$19,477.86

A. Compound interest loan

B. Simple interest loan

C. Rule of 78 loan

D. It cannot be determined by the information shown.

ANSWER: _____

5. (4 pts)

Depreciation is the decrease or loss in value of an item due to age, wear, or market conditions.

One company buys a new backhoe for $53500 . The company depreciates the backhoe over its useful life of 15 years. Its salvage value at the end of 15 years is $14500 .

Original Cost	Salvage Value	Depreciable Base	Years (N)
53500	14500	39000	15

Current Year x	Depreciation Amount	Book Value (BV) y	Δy
0	2600	53500	
1	2600	50900	-2600
2	2600	48300	-2600
3	2600	45700	-2600
4	2600	43100	-2600

The first few rows of the depreciation schedule are shown here. What depreciation method was used?

A. Straight-line method

B. Sum-of-digits method

C. Declining method

D. Double declining method

E. It cannot be determined by the information shown.

ANSWER: _____

6. (4 pts)

Of the depreciation methods discussed in class, which one or ones are designed specifically end the life cycle at ***exactly*** the salvage value? In other words, which of the methods uses the salvage value in the depreciation amount calculation?

A. Only the Straight-line method

B. Both the Straight-line and the Sum-of-Digits methods

C. Only the Declining and Double Declining Methods

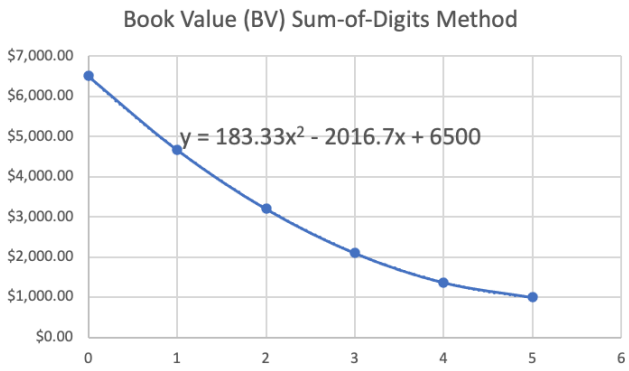
D. All four of the methods

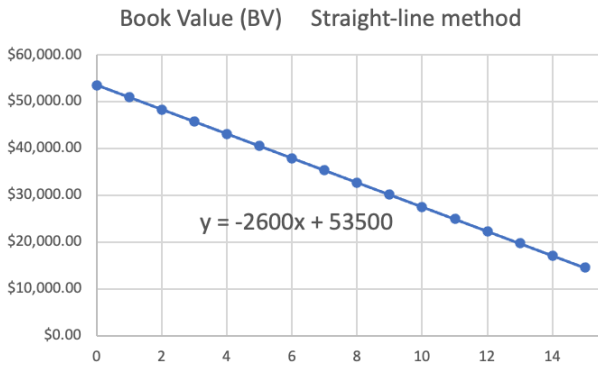
E. None of the methods

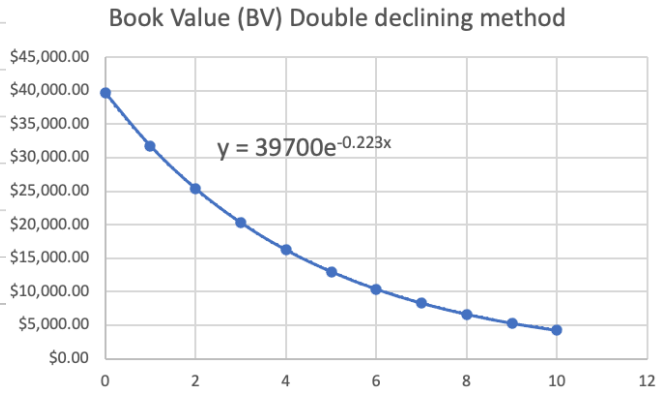
ANSWER: _____

7. (4 pts)

We discussed patterns of depreciation over time. The Book Value graphs under 3 depreciation methods are shown here. Identify the type of function that the data and equation represent.







Choose the type of function for each:

Sum-of-digits method: _____ linear _____ quadratic _____ exponential

Straight-line method: _____ linear _____ quadratic _____ exponential

Double declining method: _____ linear _____ quadratic _____ exponential

Every pattern shows a slope that is _____ positive _____ negative

8. (4 pts)

Which sentence best describes what the marginal cost of production is if the current production level is 15 units.

A. The marginal cost of production is the total cost of producing 15 units.

B. The marginal cost of production is the total cost of producing 16 units.

C. The marginal cost of production is the cost to increase production from 15 to 16 units.

D. The marginal cost of production is the amount of labor required to make 15 units.

ANSWER: _____

Cost and revenue, marginal cost, marginal revenue, and profit are shown for custom t-shirts (***quantities*** are measured in ***hundreds***). **Price** is in USD$.

Revenue and Cost for a perfectly competitive firm

Price	Quantity (Q)	Total Revenue	Marginal Revenue	Total Cost	Marginal Cost	Profit
35	0	0	35	20	11	-20
35	1	35	35	33	15	2
35	2	70	35	50	19	20
35	3	105	35	71	23	34
35	4	140	35	96	27	44
35	5	175	35	125	31	50
35	6	210	35	158	35	52
35	7	245	35	195	39	50
35	8	280	35	236	43	44
35	9	315	35	281	47	34
35	10	350	35	330	51	20
35	11	385	35	383	55	2
35	12	420	35	440	59	-20

For partial credit on questions 9 and 10, what is the maximum profit?

ANSWER _____

At what production level will profit be maximized?

ANSWER _____

9. (4 pts)

At what production level is profit maximized?

A. When total revenue equals total cost **B.** When marginal revenue equals marginal cost

C. When demand and supply are the same **D.** It cannot be determined by the information here.

ANSWER: _____

10. (4 pts)

What is the ***fixed cost*** of production? (Total cost = Fixed cost + Variable cost)

A. $11 **B.** $2 **C.** $20 **D.** cannot be determined

ANSWER: _____

Each of the following questions is graded on participation. You receive credit simply for taking the time to provide me with honest, constructive feedback. I promise not to share the results with anyone. I want to know how I can make sure future Business Math students are successful and end the class feeling like they learned something.

1. (4 pts)

Name one specific method or approach for this class that *worked better* for you than expected:

2. (4 pts)

Think about how you learn math. Was there a type of activity that was not done that may have worked for you?

3. (4 pts)

Think about how well you did in this class. Was it better than expected? As expected? or worse than expected? Name one factor that contributed to this result. What was done or not done that might have made the difference?

4. (4 pts)

How was the workload for this class? Was the workload manageable? Did you end up studying more or less than you expected?

5. (4 pts)

Think about the program of study you are in. Did you feel that any of the topics we covered or skills we learned gave you something you may use in the future? If so, what?

6. (4 pts)

Think about the quizzes and tests. I understand that no one likes quizzes or tests. It's not about enjoying them. Did you feel that they were an accurate picture of your understanding of the material? If not, is there something about tests and quizzes (the way they are designed) that helps you do better on them?