

AMDM Final Exam Review

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- Chase is offered a permanent position that pays \$45000 a year. The same week, Chase is offered a job that pays \$20.50 an hour. Based on their gross **monthly** income, which would you recommend to Chase and why?

The \$45000 per year job has a greater monthly gross

$$\$45000 \text{ per year} \div 12 = \$3750 \text{ per month gross}$$

$$\$20.50 \text{ per hour} \times (8 \text{ hour day}) \times (5 \text{ days a week}) \times (52 \text{ weeks}) \div 12 = \$3533.33$$

- Josie has \$2500 to invest. Her bank offers a savings account with .05% interest compounded annually and a Certificate of Deposit with 1.5% simple interest. What will **each** account be worth in 20 years?

Savings: $FV = (2500)(1.0005)^{20} =$

$FV = \$2525.12$

Compound: $Interest = (2500)(.015)(20) = 750$

$FV = \$2500 + 750 = 3250$

- If a job pays \$34,000 per year, what would be the estimated monthly after-tax income using the withholding figures that was used for Kafi? (15% federal income tax, 6.2% SSN, 1.45% Medicare)

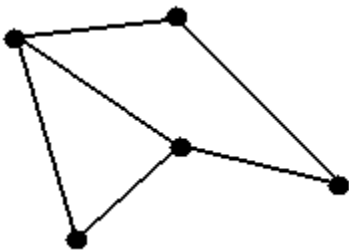
Step1. Take home percentage = $100 - 15 - 6.2 - 1.45 = 77.35\%$

Step2. Find Gross Monthly = $\$34000 \div 12 = \2833.33

Step3. Find Take home amount $.7735 \times \$2833.33 = \2191.58

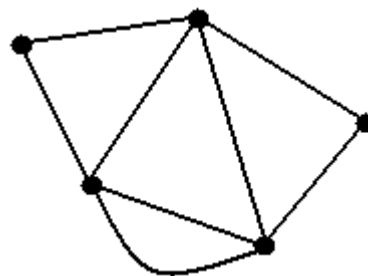
For each graph in questions #4a and #4b, either find the Euler circuit or an Euler path. If the graph has an Euler circuit; find one and label the edges in the order in which you travel them. If the graph has an Euler path, but not an Euler circuit, find one and label its edges in the order in which you travel them. (One of them is a path and the other is a circuit.)

a) Graph 1



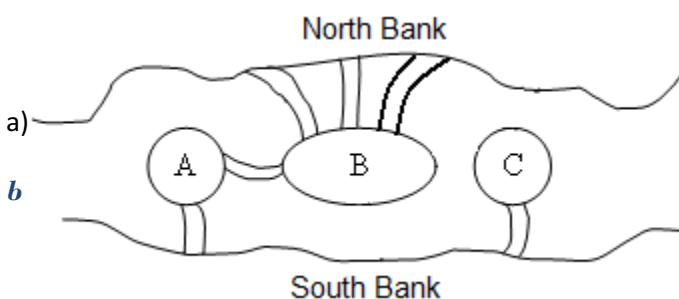
*This has 2 odd vertices so it is an Euler Path.
Actual paths may vary.*

b) Graph 2



*This has all even vertices so it is an Euler Circuit
Actual Circuits may vary*

- Consider the following map containing islands and bridges connecting them to the North Bank or South Bank of a river.



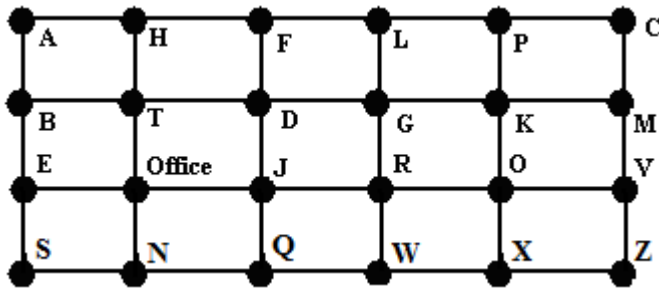
) If it has an Euler circuit, number the bridges in the order you cross them. If it doesn't, fix it so that it will by adding bridge(s). **Add a bridge between C and the North Bank.**

6. A mail carrier is assigned a new section of town. Before heading out, he wants to determine the most efficient route that still allows him to visit each house and return to the post office without visiting a house twice.

- a. Find such a route on the map below or explain why no such route exists.
(List the letters as you visit them or highlight the path using arrows to show direction.)

Answers may vary.

- b. If a route exists, explain which type of route it is (Euler path, Euler circuit, Hamiltonian path, or Hamiltonian circuit). *Hamiltonian or Hamiltonian Circuit*



7.

- a. Find the cost of 2 Hamilton Paths starting at Miami.

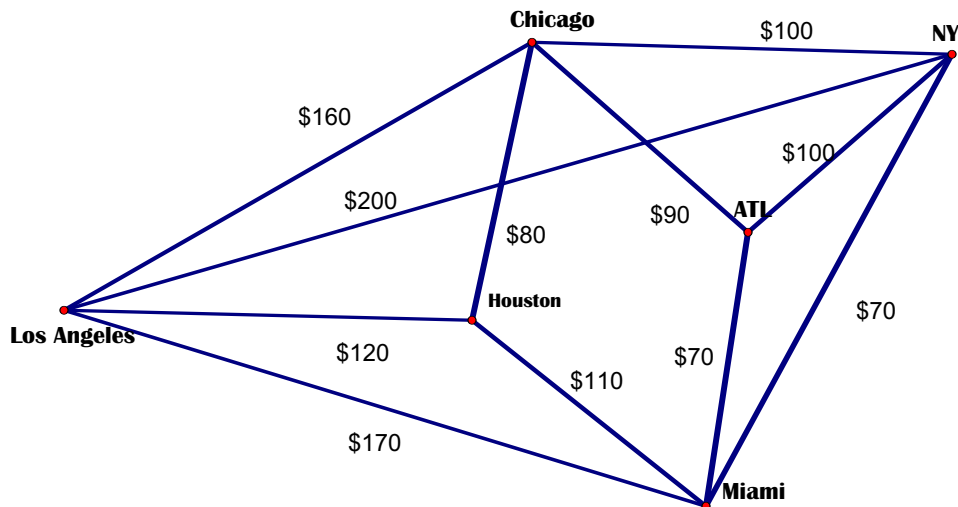
Answers may vary

Sample Answer: M-N-A-C-H-L-M costs (70+100+90+80+120+170)=460

- b. Find the cost of 2 Hamilton Paths starting at Atlanta

Answers may vary

Sample Answer: A-C-H-L-M-N-A costs (90+80+120+170+70+100+)=460



For questions 8-11: The table shows the height of a ball at the peak of each bounce.

Bounce #	0	1	2	3	4	5
Height (cm)	300	210	147	102.9	72.03	50.42

8. Write a recursive rule for the height of the ball on each successive bounce.

Initial height (a)=300

Rate(b) = 210/300 or 147/210 = 0.7 so we multiply by 0.7 to get the next number

$$g_n = g_{n-1} * 0.7$$

9. Write the explicit function rule for the data.

*Explicit: $y = a * b^x$*

Step 1 Enter data into L1 and L2

Step 2 STAT, CALC, EXPREG

*To get $y = 300 * 0.7^x$*

10. What is the height of the fourth bounce of this ball if it is dropped from a height of 200 cm? **48.02**

Set a=200. And multiply by 0.7 to get the next number

Bounce #	0	1	2	3	4	5
Height (cm)	200					

11. If this ball is dropped from a height of 105 cm, how many times does it bounce before it has a bounce height of less than 4 cm? **10 times**

Set a=105. And multiply by 0.7 to get the next number

Susan is saving money to buy a new computer before she goes to college. The computer that she wants to purchase, with all the extras, will cost her approximately \$900. In an effort to help her save money, her parents will pay her 8% interest, each month, on the money that she accumulates. She is starting out with \$500.

12. Write a recursive rule for this situation.

$$g_n = g_{n-1} * 1.08 \text{ Multiply by } 1.08 \text{ to get the next amount.}$$

13. Write the explicit rule for this situation.

$$Y = 500 * 1.08^x$$

14. How long will it take her to accumulate the \$900 if she relies only on the 8% from her parents?

About 8 months.

15. Susan has started babysitting, on a regular basis, and will add \$50 a month to her savings. How long will it take her to reach her goal?

Assuming the parent add interest after she gets paid.

$$(500+50)*1.08 = 594$$

$$(594+50)*1.08 = 695.52$$

$$(695.52+50)*1.08 = 805$$

$$(805+50)*1.08 = 923.57$$

It will take 4 months

16. The daily periodic rate describes the interest you are paying on your credit every day. Calculate the daily periodic rate to five decimal places assuming your credit card has 14.95% APR.

$$14.95\% \div 365 = 0.04096\%$$

17. If the daily periodic rate of a credit card is 0.05942% and the monthly balance on the card is \$2342.19, what is the finance charge for the month? **\$2342.19 * 0.0005942 * 31 = \$43.14**

18. What percent is a minimum payment of \$93.30 to the new balance of \$2090.74 before interest?

$$93.30 \div 2090.74 = 0.0446 \text{ or } 4.46\%$$

19. Examine the credit card statement below. Calculate the new balance including credits, debits, and finance charges. $1372.59 - 150.21 + 410.89 + 33.36 = 1666.63$ the new balance is \$1666.63

TEXAS CREDIT		OPENING/CLOSING DATE:	7/19/08 - 08/18/08	
		PAYMENT DUE DATE:	9/12/08	
		MINIMUM PAYMENT DUE:	\$93.30	
<u>CARD SUMMARY</u>		<u>ACCOUNT NUMBER 5555 5555 5555 5555</u>		
PREVIOUS BALANCE	\$1372.59	TOTAL CREDIT LINE	\$3,000	
PAYMENT, CREDITS	-\$150.21	AVAILABLE CREDIT	\$376	
PURCHASES, CASH, DEBITS	\$410.89	CASH ACCESS LINE	\$500	
FINANCE CHARGES	\$33.36	AVAILABLE FOR CASH	\$376	
NEW BALANCE	???			
<u>TRANSACTIONS</u>				
DATE	DESCRIPTION	CREDIT	DEBIT	
7/23	GAS		\$70.61	
7/24	PAYMENT - THANK YOU	\$100		
7/24	HARDWARE STORE		\$139	
7/28	FLOWERS		\$24.95	
8/03	GROCERIES		\$176.33	
8/18	HARDWARE STORE RETURN	\$50.21		
<u>FINANCE CHARGES</u>				
TYPE	DAILY PERIODIC RATE	APR	AVERAGE DAILY BALANCE	FINANCE CHARGE DUE TO PERIODIC RATE
	31 DAYS IN CYCLE			
PURCHASES	.06836	24.95 %	\$1573.89	\$33.36
CASH	.06836	24.95 %	\$0	\$0

20. Answer AT LEAST ONE question below (It would help me if you answered both, but only one is required.)

- What can I do next year to make AMDM/AQR better or easier?
- What are some things that you liked AND disliked about AMDM this year?