

GROCERY SHOPPING FOR CHRISTMAS DINNER

Our mothers are trying to buy a delicious christmas dinner but don't know where to shop at. All stores are closed except for Jewel, Mariano's and Whole Foods. You tag along with your mom and try to find the cheapest place to buy your dinner. Analyse the mother's shopping lists.

	Ham	Cake	Mashed Potatoes
Family #1	2	3	2
Family #2	2	1	2
Family #3	3	2	3

	Jewel-Osco	Whole Foods	Mariano's
Ham	10	30	20
Cake	7	21	14
Mashed Potatoes	5	15	10

- 1) Turn the tables into matrices and figure out the totals from every store if the families were to shop there.
- 2) Who can go on the most expensive shopping spree in what store?
- 3) Who can go on the least expensive shopping spree in what store?
- 4) If all families had a budget of \$250, what store would offer more food for their money?

Maya Eingal
 Brett Wicklund
 Ava Heiniger
 Jalyssa Montes

Congratulations! You just got a job as a nutritionist and you want to find the cheapest produce for your clients. You not only want to save money for your clients, but also for the citizens so they can get the best produce; you check out some different stores. You can find the amount of produce from each store in Table A and the prices from different suppliers in Table B.

Table A:

	Apples	Corn	Carrots
January	50	75	60
February	70	55	85
March	65	45	65
April	60	50	60
May	70	55	75
June	85	75	70
July	80	85	80
August	70	75	85
September	65	70	85
October	60	65	80
November	55	60	75
December	65	70	65

Table B:

Mariano's	Jewel Osco	Trader Joe's	
\$6	\$3	\$5	Apple
\$4.5	\$4	\$3.5	Corn
\$4	\$3.5	\$4.5	Carrots

Group 2 Page 2

Maya Einqal
Brett Wicklund
Ava Heimiger
Jalyssa Monte

(a) Calculate $[A][B]$. Record the results below. Clearly label the row and column of the resultant matrix with its meaning in the context of the problem.

(b) What grocery store provides the clients with the cheapest option to buy their produce?

(c) What is the most expensive price for the produce? What combination of store and produce gives this price?

Make-Your-Own FRQ: Textbook Distribution

It's Quickstart in a week! Mr. Luis and textbook distribution have to buy brand new textbooks because of the great textbook fire of 2016. Lane Tech has a low budget this year (as usual) and need to find the cheapest books for all of their classes.

Matrix A

# of Students in Period	APUSH	Pre Calc	APhysics
1st	30	32	23
2nd	21	28	28
3rd	47	25	19
4th	28	23	27
5th	32	42	32
6th	23	24	15
7th	29	39	25
8th	21	27	43

Prices (Matrix B):

Subject	Larson	Pearson	McGraw-Hill
APUSH	\$90	\$95	\$100
Pre-Calc	\$200	\$230	\$250
APhysics	\$130	\$150	\$120

- Compute matrix $A \times B$. What does this resultant matrix tell you?
- Which company gives the best deal for buying the textbooks needed during 3rd period?
- Calculate the total cost of buying textbooks from each company. (Total cost if Mr. Luis bought everything from Pearson, Larson, or McGraw-Hill)
- Overall, which textbook company should Mr. Luis get textbooks from?

Tim's Demand for Cheese Pizzas by Day

	Medium	Large	Extra Large
Monday	4	7	8
Tuesday	8	5	6
Wednesday	9	5	3
Thursday	8	2	7
Friday	7	7	4
Saturday	1	10	9
Sunday	6	6	8

	Papa John's	Domino's	Pizza Hut
Medium	\$13	\$11	\$12
Large	\$15	\$16	\$15
Extra Large	\$17	\$19	\$18

- Given the above tables, where Table A represents the number of cheese pizzas by size demanded per day of the week and Table B represents the cost of the different sizes of pizzas at various restaurants, for everyday, determine from which restaurant Tim should order his cheese pizzas.
- If Tim were to order from only one restaurant every week, which restaurant should he order from for this week?
- Finally, which combination of day of the week and pizza restaurant provides the highest total cost for Tim?



Group 5

Matrices Mall Method

Congratulations Maddie! You won a shopping trip to Target, GAP, The Garage, and Express! Choose three other people to come along with you on your all expense paid trip to the mall! Once your shopping trip is over, analyze how much you and your friends spent so you all are aware of how many items you can purchase next time you go shopping! Enjoy!

	Shoes	Pants	Sweaters	Scarves	T-Shirts
Megan	5	3	4	2	3
Danijela	3	2	4	8	5
Maddie	6	4	6	1	4
Ms. Delisle	4	3	8	2	4

	Target	GAP	Garage	Express
Shoes	\$20	\$50	\$40	\$50
Pants	\$30	\$70	\$15	\$30
Sweaters	\$15	\$50	\$30	\$30
Scarves	\$10	\$30	\$15	\$25
T-Shirt	\$8	\$20	\$20	\$15

Questions:

- A) Who's shopping trip was the most expensive? At which store?

- B) What store allows Ms. Delisle to buy all her apparel overall for the cheapest price?

- C) What store would be the most expensive for Megan?

Group 6

2016 Honors Precalculus Matrices FRQ

You have decided to follow your dreams and open up a conveyor belt sushi restaurant. There's only one problem: you have no fish. You look up three international fishing companies that can provide all the types of fish you like. However, you can't tell which one has the better bang for your buck. Use matrices to analyze the prices from the three fishing companies.

Amount per sale

TABLE A	Eel	Tuna	Salmon
Atlantic Ocean	3 Kg	9 Kg	12 Kg
Pacific Ocean	5 Kg	7Kg	11Kg
Indian Ocean	6Kg	10Kg	8Kg
Arctic Ocean	2 Kg	8 Kg	10 Kg

Price per Kg

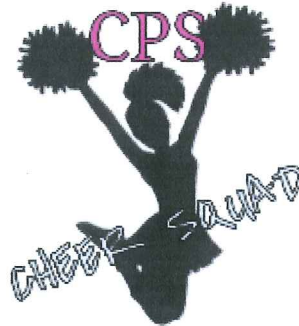
TABLE B	Flymen	Berkley	Glacier
Salmon	\$7.21	\$6.89	\$7.84
Eel	\$13.13	\$12.45	\$10.55
Tuna	\$10.43	\$9.56	\$8.75

Questions:

1. Combine both matrices to show how much it costs to get certain fish from certain oceans. Clearly label the row and column of the resultant matrix with the correct labels for each side.
2. What is the overall most expensive ocean to get fish from? Cheapest?
3. Which fishing company is the cheapest? Most expensive?

Almina Sabanovic
 Kamila Wrobel
 Kamila Miezio
 Alma Magdaleno

Cheer Managing!



CPS has just ran out of money to buy an actual director for cheerleading, so you volunteered to do the job! The first task of this job is to get LT, Taft, and Lakeview situated for apparel. You get to choose which brand they order from. Hurry fast before their first competitions!

	Uniform	Bows	Shoes	Pom poms
Lane Tech	30	28	30	16
Taft	25	20	25	19
Lake View	27	22	27	15

	Varsity	GTM	Omni	Chassè
Uniforms	\$300	\$120	\$180	\$200
Bows	\$25	\$10	\$15	\$13
Shoes	\$60	\$25	\$35	\$30
Pom poms	\$30	\$18	\$20	\$23

1. List the brands from least to greatest cost for Lane.

2. You have a budget of \$4,500 for Lakeview. Which brand should you buy from? How much money will you have leftover, if any?
3. On average, which brand gives all teams the best prices?

Christmas Matrices

Congratulations! Your good old mom, rich godmother, cheap uncle, and wannabe-rich but not really rich aunt have entrusted you to go shopping for Christmas decorations in their place and they have specifically assigned you to purchase the candy canes, spheres (in packs of four), and the boxes of christmas lights for each of them. They want you to find the store where it's cheapest to purchase the items they asked you to buy for them.

The orders are as follows:

	Candy Canes	Spheres (In Packs of 4)	Boxes of Lights
Good-Old Mom	7	15	5
Rich Godmother	15	25	8
Cheap Uncle	40	3	3
Acts Rich but Not Really Rich Aunt	12	20	7

The prices of the the items at Walmart, Target, and Walgreens are as follows:

	Target	Walmart	Kmart
Candy Cane Price	\$1.00	\$2.00	\$2.00
Spheres (In Packs of 4) Price	\$15.00	\$9.00	\$6.00
Boxes of Light Price	\$12.00	\$8.00	\$10.00

1. Create two matrices for each of the tables above and a third matrix for the total price of the order for each of your family members for each store.
2. Where should you go to buy each of your family members' demand as to get the best deal?
3. Your family members have decided that it might be cheaper if you were to buy their orders all together and then split the total in fourths for each of them. Create a new orders matrix and solve for a new total price matrix.
4. Would it be more efficient for each of your family members to purchase each order separately or all together? Explain your answer. Also, provide the margin of efficiency or deficiency for all parties involved.

Micquela Washington
 Katherine Boogert
 Period 2

FRQ

You're looking into buying a service dog and you want to find out which one will cost the least in the long run. You are choosing between five different breeds who each need different amounts of food, vitamins and training per month. After doing some research, you've found the supplies each breed would need and three stores that carry all of your required supplies.

	Food (in lbs per month)	Vitamins (ounces per month)	Training (hours per month)
Poodle	45	23	35
Collie	30	15	45
Golden Retriever	50	25	25
Lab	49	24	25
Husky	55	27	20

	Pet Store #1	Pet Store #2	Pet Store #3
Food (per lb)	\$18	\$12	\$16
Vitamins (per oz)	\$18	\$21	\$17
Training (per hour)	\$10	\$5	\$7

1. Rank the dogs by most to least expensive to care for if you shopped at pet store #3.
2. What is the cost difference between the most expensive dog supplies at pet store #1 versus the least expensive dog supplies at pet store #2?
3. How much would you spend on one month's training for a poodle at pet store #3?

Scenario: A 4 person family is planning a trip to Hawaii for holidays (a week) and needs to find the best resort to stay at. They are on a budget so finding a location with a reasonable price is very important.

The resorts:

Turtle Bay Resort

Each night= \$89 per person

Food= 3 meals a day for \$30 per person

Extra activities (10)= \$40 per person for the entire stay

Four Seasons Resort

Each night= \$102 per person

Food= 3 meals a day for \$40 per person

Extra activities(10)= Free, comes as a package deal

Royal Lahaina Resort

Each Night= \$155 per person

Food= unlimited free food bar accessible to all visitors

Extra Activities(10)= Free, comes as a package deal

Table 1

Resort	Price	Food	Extra Activities
Turtle Bay	\$89	\$30	\$40
Four Seasons	\$102	\$40	Free
Royal Lahania	\$155	Free	Free

Table 2

	Total amount
Amount of days	7
Food (amount of meals)	3
Activities	10

1. Compute the product of tables 1 and 2.
2. What is the cheapest vacation plan for this family from the available resorts to stay at?
3. What would be the most expensive resort to stay at?