

1996 Released Items

Affording a Car

Use the information below to answer questions 1, 2, and 3.

Liam is planning to buy a car. He saw a car he liked in the newspaper ad shown below. He also gathered additional information about the price of gasoline, insurance costs and auto loan payment schedules which are also shown below.

FOR SALE. Two-year old **Ventur**. \$6000.
 25 miles per gal. Auto, a/c, many extras.
 Excellent cond. Maintenance—\$300 per
 year avg. Call 555-2373 after 5 PM.

ConnAm Insurance Company
 Automobile Insurance

Model	Age	Annual Rate
Ventur	2 yr	\$720

ECON GAS

Regular Unleaded **\$1.24**⁹/₁₀ / gal.

Federal United Bank	5-year loans							
Amount of Loan	\$4400	\$4600	\$4800	\$5000	\$5200	\$5400	\$5600	\$5800
Monthly Payment	\$93	\$98	\$102	\$106	\$110	\$115	\$119	\$123

Liam has saved \$1500. He also earns \$250 a month from his part-time after school job. Liam uses the worksheet shown on the next page to help him decide whether or not he can afford to purchase and maintain the Ventur described in the ad.

Car Purchase Worksheet		for <u>Venture</u>	
A. Initial Expenses		B. Monthly Expenses	
Registration		Gasoline	
Sales Tax (6%) of _____		Insurance	
		Maintenance	
Down Payment		Loan Payment	
Total		Total	

Affording a Car (continued)

1-2. Worksheet

1. Liam first needs to calculate how much of his \$1500 savings he would have left for a down payment after paying for registration and sales tax. Registration fees are \$240 and sales tax is 6% of the \$6000 purchase price of the car.

In your answer booklet, calculate how much Liam will have left for a down payment. Then complete the Car Purchase Worksheet, Section A: Initial Expenses, with your figures.

2. Liam needs to estimate his monthly car expenses to see if his \$250 a month earnings are enough to purchase the \$6000 car. Here is what Liam figures:

- the car will get about 25 miles per gallon;
- he will drive about 1000 miles per month;
- his insurance will be about \$720 per year;
- his maintenance costs will be about \$300 per year; and
- he will take a 5-year loan on the full cost of the car minus the down payment he can make.

Use the above information and the Federal United Bank loan repayment table and the cost of gasoline to calculate each of Liam's monthly expenses. In your answer booklet, complete the Car Purchase Worksheet, Section B: Monthly Expenses, with your figures.

3. The Purchasing Decision

Considering all of your calculations, explain whether or not Liam can afford to purchase and maintain the Ventur and tell how you arrived at this conclusion.

Affording a Car (continued)

4. Kate's Car

Liam's older sister, Kate, is also thinking about buying a car. The car she would like to purchase costs \$8200. Liam suggested that she fill out a Car Purchase Worksheet like the one he used, based on her insurance rate and her estimate of monthly expenses. Her Car Purchase Worksheet is shown below.

Car Purchase Worksheet		for <u>Comet</u>	
A. Initial Expenses		B. Monthly Expenses	
Registration	\$240	Gasoline	45
Sales Tax (6%) of <u>8200</u>	492	Insurance	40
		Maintenance	20
Down Payment	2400	Loan Payment	123
Total	3132	Total	228

Kate's weekly take-home pay from a part time job is \$60. She has \$3200 saved in her savings account. Based on the information in Kate's Car Purchase Worksheet, what advice about buying the car should Liam give his sister?

The Sandwich Shop

1. Cost per Sandwich

Jeff and Laura considered opening a sandwich shop next to some large office buildings that are across the street from a park. First they estimated their monthly fixed expenses to be:

rent	\$500
utilities	\$80
wages	\$2300
insurance	\$100

They estimated the cost of sandwich ingredients to be \$1.60 for each sandwich made. Finally, they estimated that they could sell each sandwich for \$4.00. Use these estimates to complete the table for the sale of 500 sandwiches.

2. Breaking Even

Jeff and Laura then decided to figure out their Estimated Monthly Expenses, Sales and Profit for 1000-6000 sandwiches. They put their calculations in the table below.

Number of Sandwiches Made and Sold	Estimated Monthly Expenses (Fixed plus \$1.60 per sandwich)	Sales (\$4.00 per sandwich)	Profit (Sales less expenses)
1000	\$4,600	\$4,000	\$ -600
2000	\$6,200	\$8,000	\$1,800
3000	\$7,800	\$12,000	\$4,200
4000	\$9,400	\$16,000	\$6,600
5000	\$11,000	\$20,000	\$9,000
6000	\$12,600	\$24,000	\$11,400

Construct a double line graph from the data in the chart showing expenses and sales on the vertical axis and the number of sandwiches made and sold on the horizontal axis. Use the graph to estimate how many sandwiches Jeff and Laura would have to sell each month to break even. Explain how you used the graph to arrive at your answer.

The Sandwich Shop (continued)

3. The Survey Says—

In order to estimate the number of sandwiches they might sell in one day, they conducted a survey at the entrance to one of the office buildings and in the park at lunchtime. They asked, “Are you likely to buy a sandwich for lunch?”

There are usually about 100 people in the park. Jeff and Laura surveyed 25 of them. The following are the results of the survey:

Yes, likely to buy a sandwich	11
No, not likely to buy a sandwich	14

About 800 people work in the office building, and Jeff and Laura surveyed 60 of them. The following are the results of the survey:

Yes, likely to buy a sandwich	23
No, not likely to buy a sandwich	37

Based on their surveys, how many potential customers will they have from the park and office buildings? Explain how you found your answers.

4. Profit

Laura and Jeff predict that the number of potential customers per month for a new office building is about 600. What is the potential additional monthly profit from sales at this new office building? Should Laura and Jeff expand their business to include the employees at this new office building? Explain how you determined your answer.

Fame and Fortune

The agent for a group of musicians has presented the following two contracts for their first CD recording:

Contract A: The recording company will pay them \$1.50 per CD sold, but the group must pay \$50,000 production costs from their profits.

Contract B: The recording company will pay them \$0.50 per CD sold, with no charge for production costs.

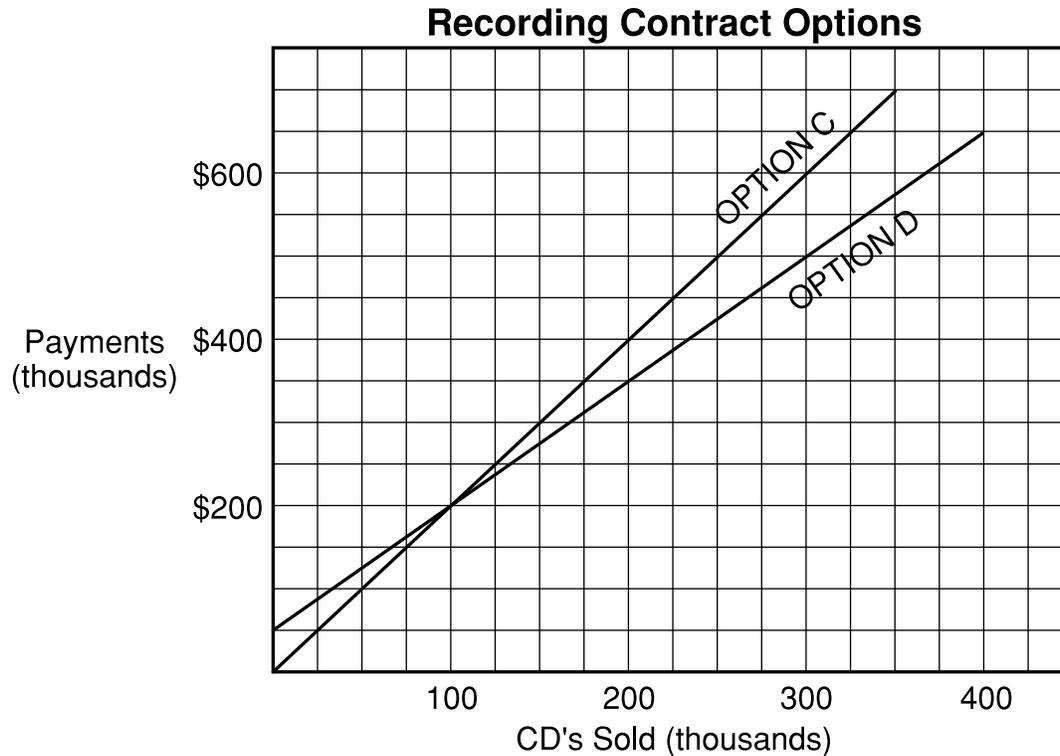
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1. What is the difference in profit (if any) between options A and B when 50,000 CDs have been sold?
 2. The group was optimistic about sales of their CD, so they chose option A. After the CD had been on sale for two weeks, they received this letter from the recording company:

Congratulations: Payments to your account have covered the production costs and left you a net profit of \$1000. A check for that amount is enclosed.

How many CDs were sold in the first two weeks?

Fame and Fortune (continued)

After the success of their first CD, the group is offered the choice of one of the following two options for a better contract. One option even includes a signing bonus. (A “signing bonus” is given for signing a contract even before any CD sales have been made.) The graph below represents the payments of the two options.



- Under the option that includes a signing bonus, how much is the bonus?
- Under Option C, how much is the payment per CD sold?

Baseball Statistics

In baseball, a “batting average” for a player or a team is a decimal fraction determined by dividing the number of hits by the times at bat. The table below shows batting statistics for each team in the National League for 1992.

National League Team Batting Statistics				
1992				
Team	Batting Average	Times At Bat	Hits	Home Runs
St. Louis	.262	5594	1464	94
Cincinnati	.260	5460	1418	99
San Diego	.255	5476	1396	135
Pittsburgh	.255	5527	1409	106
Chicago	.254	5590	1420	104
Atlanta	.254	5480	1391	138
Philadelphia	.253	5500	1392	118
Montreal	.252	5477	1381	102
Los Angeles	.248	5368	1333	72
Houston	.246	5480	1350	96
San Francisco	.244	5456	1330	105
New York	.235	5340	1254	93

1. What was the range of home runs (the difference between the highest and lowest number of home runs) for the teams in 1992 as represented in the table?
2. To the nearest whole percent, what percent of Atlanta’s hits were home runs in 1992?

Baseball Statistics (continued)

Atlanta Braves Batters Top 5 for 1992	
Name	Times At Bat
Terry Pendleton	640
Deion Sanders	303
Otis Nixon	456
Jeff Blauser	343
Sid Bream	372

3. As members of the 1992 Atlanta Braves, Terry Pendleton had a higher batting average than Deion Sanders. If Sanders had 92 hits, what is the minimum number of hits that Pendleton could have had?
4. Of Sid Bream's hits, 10.3% were home runs. If he had 97 hits, how many were home runs?
5. Otis Nixon's batting average for 1992 was .294. To the nearest whole number, how many hits did he get? (Batting averages are calculated by dividing the number of hits by the number of times at bat.)