Week 3

Benedictine University at Springfield
Managerial Accounting
Homework – Decision Making, Budgeting

1. **Disposal of assets.** A company has inventory of 1,000 assorted parts for a line of missiles that has been discontinued. The inventory cost is $80,000. Subcost (irrelevant)

Required

The parts can be either (1) remachined at total additional costs of $30,000 and then sold for $35,000 or (2) sold as scrap for $2,000. Which action is more profitable? Show your calculations.

	Remach	Scrap
Relevant Rev	35,000	2000
Relevant Cost	30,000	0
	5000	2000

2. **Disposal of assets.** A truck costing $100,000 and uninsured, is wrecked its first day in use.

Required

It can be either (1) disposed of for $10,000 cash and replaced with a similar truck costing $102,000 or (2) rebuilt for $85,000, and thus be brand-new as far as operating characteristics and looks are concerned. Which action is less costly? Show your calculations.

	Rebuy	Rebuild
Relevent Rev	10,000	85,000
Relevent CV	102,000	85,000
Net →	92,000	

3. **Inventory decision, opportunity costs.** Lawnox, a manufacturer of lawn mowers, predicts that 240,000 spark plugs will have to be purchased next year. Lawnox estimates that 20,000 spark plugs will be required each month. A supplier quotes a price of $8 per spark plug. The supplier also offers a special discount option: If all 240,000 spark plugs are purchased at the start of the year, a discount of 5% off the $8 price will be given. Lawnox can invest its cash at 8% per year. It costs Lawnox $200 to place each purchase order.

Required

a. What is the opportunity cost of interest forgone from purchasing all 240,000 units at the start of the year instead of in 12 monthly purchases of 20,000 units per order?
b. Would this opportunity cost ordinarily be recorded in the accounting system? Why?
c. Should Lawnox purchase 240,000 units at the start of the year of 20,000 units each month? Show your calculations.

done

4. **Selection of most profitable product.** Body-Builders, Inc., produces two basic types of weightlifting equipment, Model 9 and Model 14. Pertinent data are as follows:

	Per Unit	
	Model 9	Model 14
Selling price	$100.00	$70.00
Costs		
Direct material	28.00	13.00
Direct manufacturing labor	15.00	25.00
Variable manufacturing overhead*	25.00	12.50
Fixed manufacturing overhead*	10.00	5.00
Marketing (all variable)	14.00	10.00
Total cost	92.00	65.50
Operating income	$ 8.00	~~$ 5.50~~ $4.50

*Allocated on the basis of machine-hours.

add up to re-check they are right

Required

The weight-lifting craze is such that enough of either Model 9 or Model 14 can be sold to keep the plant operating at full capacity. Both products are processed through the same production departments. Which products should be produced? Briefly explain your answer.

5. **Opportunity costs.** The Wolverine Corporation is working at full production capacity producing 10,000 units of a unique product, Rosebo. Manufacturing cost per unit for Rosebo is as follows:

Direct material	$ 2
Direct manufacturing labor	3
Manufacturing overhead	5
Total manufacturing cost	$ 10

Manufacturing overhead cost per unit is based on variable cost per unit of $2 and fixed costs of $30,000 (at full capacity of 10,000 units). Marketing cost, all variable, is $4 per unit, and the selling price is $20.

A customer, the Miami Company, has asked Wolverine to produce 2,000 units of Orangebo, a modification of Rosebo. Orangebo would require the same manufacturing processes as Rosebo. Miami has offered to pay Wolverine $15 for a unit of Orangebo and half the marketing cost per unit.

Required

a. What is the opportunity cost to Wolverine of producing the 2,000 units of Orangebo? (Assume that no overtime is worked.)
b. The Buckeye Corporation has offered to produce 2,000 units of Rosebo for Wolverine so that Wolverine may accept the Miami offer. That is, if Wolverine accepts the Buckeye offer, Wolverine would manufacture 8,000

5. (continued)

units of Rosebo and 2,000 units of Orangebo and purchase 2,000 units of Rosebo from Buckeye. Buckeye would charge Wolverine $14 per unit to manufacture Rosebo. On the basis of financial considerations alone, should Wolverine accept the Buckeye offer? Show your calculations.

c. Suppose Wolverine had been working at less than full capacity, producing 8,000 units of Rosebo at the time the Miami offer was made. Calculate the minimum price Wolverine should accept for Orangebo under these conditions. (Ignore the previous $15 selling price.)

6. **Personal cash budget.** At the beginning of the 2006 school year, Abby Dickens decided to prepare a cash budget for the months of September, October, November, and December. The budget must plan for enough cash on December 31 to pay the spring semester tuition, which is the same as the fall tuition. The following information relates to the budget:

Cash balance, September 1 (from a summer job)	$6,000
Purchase season volleyball tickets in September	180
Additional entertainment for each month	250
Pay fall semester tuition on September 3	3,250
Pay rent at the beginning of each month	400
Pay for food each month	320
Pay apartment deposit on September 2 (to be returned December 15)	500
Part-time job earnings each month (net of taxes)	1,000

Required

a. Prepare a cash budget for September, October, November, and December.
b. Are the budgets prepared as static budgets or flexible budgets?
c. What are the budget implications for Abby?

7. **Sales and production budgets.** Bass Company manufactures two models of speakers, DL and XL. Production and sales data for September 2007 follows:

	DL	XL
Estimated inventory (units), September 1	350	120
Desired inventory (units), September 30	410	100
Expected sales volume (units):		
East Region	4,200	3,000
West Region	3,150	2,200
Unit sales price	$125.00	$180.00

7350 5200

Required

Based on the production and sales data for September 2007, prepare (a sales budget and (b) a production budget.

8. **Direct materials purchases budget.** Bambi Enterprises is the largest bottler of Sour Sodas in North America. The company purchases Lemon Sour and Sweet Lemon soda concentrate from Sulfur Springs Company, dilutes and mixes the concentrate with carbonated water, and then fills the blended beverage into cans or plastic 2-liter bottles. Assume that the estimated production for Lemon Sour and Sweet Lemon 2-liter bottles at the Chattanooga, Tennessee, bottling plant are as follows for the month of August:

Lemon Sour	178,000 two-liter bottles
Sweet Lemon	142,000 two-liter bottles

In addition, assume that the concentrate costs $80 per pound for both Lemon Sour and Sweet Lemon and is used at a rate of 0.2 pound per 100 liters of carbonated water in blending Lemon Sour and 0.15 pound per 100 liters of carbonated water in blending Sweet Lemon. Assume that two-liter bottles cost $0.09 per bottle and carbonated water costs $0.04 per liter.

Required

Compute the cost of a 2-liter bottle of Lemon Sour and Sweet Lemon.

~~3000 · 180~~
~~2200~~ = ~~936,000~~

Bottles .09 x 178,000 = 16,020

~~49¢ Sour~~
~~44¢ Sweet~~

~~217 314 0427~~

math 314-0427

meg 8168837

Benedictine University at Springfield
EXAM – Session III

Use 5 Step model

PROBLEMS

1. Kim Murphy purchased a 1997 LeBaron Convertible in 2005 for $5,000. Since purchasing the car, she has spent the following amounts on parts and labor:

Fuel pump	$120
Canvas top	265
Master cylinder	135
Disk brakes	150
Hoses, plugs	80
Labor	250
Total	$1,000

Kim is not totally satisfied with the LeBaron. To bring the car to a condition that she feels it should be, she anticipates the following costs of restoration:

Rebuilt engine	$700
New paint job	800
Tires	360
New interior	500
Misc maintenance	340
Total	$2,700

In a visit to a used car dealer, Kim found a four-year-old Mitsubishi Eclipse in mint condition for $7,000. Kim has advertised and found that she can sell the LaBaron for only $3,000. If she buys the Eclipse, Kim will pay cash, but she would need to sell the LeBaron.

Required

a. In trying to decide whether to restore the LeBaron or buy the eclipse, Kim is distressed because she already has spent $6,000 on the LeBaron. The investment seems too much to give up. How would you react to Kim's concerns?

b. List all costs that are relevant to Kim's decision. What advice would you give Kim?

2. Cindy Burnson, the manager of Fondlike Company, was agonizing over an offer for an order requesting 7,000 boxes of birthday cards. Fondlike was operating at 70 percent of its capacity and could use the extra business. Unfortunately, the order's offering price of $7.75 per box was below the cost to produce the cards. The controller was opposed to taking a loss on the deal. However, the personnel manager argued in favor of accepting the order even though a loss would be incurred; it would avoid the problem of layoffs and would help maintain the community image of the company. The full cost to produce a box of birthday cards is presented below:

Direct materials	$2.00
Direct labor	3.00
Variable overhead	1.50
Fixed overhead	2.50
Total	$9.00

The order is from a customer in a region not ordinarily serviced by the company. No variable selling or administrative expenses would be associated with the order. Nonunit level costs are a small percentage of total costs and therefore not considered.

Required

a. Assume that the company would accept the order only if it increased total profits. Should the company accept or reject the order? Provide supporting computations.

b. Consider the personnel manager's concerns. Discuss the merits of accepting the order even if it decreased total profits.

Use 5 Step method

3. Barstow Corporation buys three chemicals that are processed to produce two popular ingredients for liquid cough syrups. The three chemicals are in liquid form. The purchased chemicals are blended for two or three hours and then heated for fifteen minutes. The results of the process are two separate ingredients, Suppressant AB2 and Suppressant AB3. The suppressants are sold to companies that process them into their final form. The selling prices are $10 per gallon for AB2 and $25 per gallon for AB3. The costs to produce 1,000 gallons of each chemical are as follows:

Chemicals	$11,000
Direct labor	9,000
Overhead	7,000

The suppressants are bottled in 4-gallon plastic containers and shipped. The cost of each container is $1.50. Shipping costs $0.20 per container.

Barstow Corporation could process Suppressant AB2 further by mixing it with inert powders and flavoring to form cough tablets. The tablets can be sold directly to retail drug stores as a generic brand. If this route is taken, the revenue received per case of tablets would be $6.00, with five cases produced by every gallon of Suppressant AB2. The costs of processing into tablets total $5.00 per gallon of AB2. Packaging costs $2.00 per case. Shipping costs $0.40 per case.

Required

a. Should Barstow sell Suppressant AB2 at split-off or should AB2 be processed and sold as tablets?

b. If Barstow normally sells 360,000 gallons of AB2 per year, what will be the difference in profits if AB2 is processed further?

4. Dutson Company manufactures running shoes and tennis shoes. The projected income statements for the two products are as follows:

	Running Shoes	Tennis Shoes
Sales	$450,000	$750,000
Less: Variable costs	(270,000)	(300,000)
Contribution margin	$180,000	$450,000
Less: Direct fixed expenses	(200,000)	(220,000)
Segment margin	$(20,000)	$230,000
Less: Common fixed costs (allocated)	(50,000)	(75,000)
Net income (loss)	$(70,000)	$ 155,000

The president of the company is considering dropping the running shoes. However, if the line is dropped, sales of tennis shoes will drop by 10 percent. There are no significant nonunit-level activity costs.

Required

a. Should the company drop or keep the line of running shoes? Provide supporting computations.

b. Assume that increasing the advertising budget by $20,000 will increase sales of running shoes by 5 percent and tennis shoes by 3 percent. Should advertising be increased?

5 step method

5. Switzer Company is currently manufacturing Part 67Y, producing 5,000 units annually. The part is used in the production of several products made by Switzer. The cost per unit for 67Y is as follows:

Direct materials	$3.00
Direct labor	2.00
Variable overhead	1.00
Fixed overhead	1.50
Total	$7.50

Of the total fixed overhead assigned to 76Y, $1,500 is direct fixed overhead and the remainder is common fixed overhead. An outside supplier has offered to sell the part to Switzer for $7.05. There is no alternative use for the facilities currently used to produce the part. There are no significant nonunit-based overhead costs.

Required

a. Should Switzer Company make or buy Part 67Y?

b. What is the most Switzer would be willing to pay to an outside supplier?

6. Beltz Company is considering the replacement of a machine that is presently used in the production of its product. The following data are available:

	Old Equipment	Replacement Equipment
Original cost	$100,000	$60,000
Useful life in years	15	7
Current age in years	8	0
Book value	$ 45,000	-
Disposal value now	$ 28,000	-
Disposal value in 7 years	0	0
Annual cash operating costs	$ 12,000	$ 9,000

Required

Ignoring income taxes, indicate the best alternative for Beltz Company. Provide computations to support your decision.

7. My Café specializes in short-order meals and morning and afternoon snack-breaks. It is open from 9:00 am until 4:00 pm. An office manager in a nearby high-rise office building offers the owner a contract to provide her 100 employees with afternoon snack-breaks for $2.00 each. Each employee would receive a drink and a snack item. The shop has an hourly capacity of 100 customers.

The owner estimates that the variable costs of the afternoon breaks would be $1.20 each. Currently, the afternoon service, starting at 2:00, is running at only 50 percent capacity, although the morning and noon activities are near capacity. At the present level of operations, each meal/snack served is allocated fixed cost of $0.25.

Required

Should the offer by accepted? Why or why not? Provide computations to support your decision.

8. Accounting Services, Inc. has offered to do all the billings and collections of Dr. Anderson, a general practitioner. The annual fee will by $10,000. The service will replace the part-time bookkeeper who works for $10 an hours, 10 hours a week. Because these activities will take place away from the office, Dr. Anderson estimates that he will have one additional hour a week to see patients. Normally, he sees three patients an hour with an average visit fee of $50. The office is open 50 weeks a year. Since the computer service will maintain all records in its office, the doctor will no longer need to rent storage space for the office files. The storage space rents for $200 a month.

Required

Determine whether or not Dr. Anderson should accept the offer to use the computer service. Support your conclusion with computations.

9. Clarkson Manufacturing Inc. has just received an offer from a supplier to buy 6,000 units of a component used in its main product. The component is a gear that is currently produced internally. The supplier has offered to sell the gear for $44 per unit. Clarkson is currently using a conventional, unit-based cost system that assigns overhead to jobs on the basis of direct labor hours. The estimated traditional full cost of producing the gear is given below:

Direct materials	$20
Direct labor	10
Variable overhead	10
Fixed overhead	32

Required

Determine whether the gear should be produced internally or purchased from the supplier. Support your conclusion with proper documentation.

10. Gray Dentistry Services is part of an HMO that operates in a large metropolitan area. Currently, Gray has its own dental laboratory to produce porcelain and gold crowns. The unit costs to produce the crowns are as follows:

	Porcelain	Gold
Raw materials	$ 60	$ 90
Direct labor	20	20
Variable overhead	5	5
Fixed overhead	22	22
Total	$ 107	$ 137

Fixed overhead is detailed as follows:

Salary (supervisor)	$30,000
Depreciation	5,000
Rent (lab facility)	20,000

Overhead is applied on the basis of direct labor hours. The rates above were computed using 5,500 direct labor hours. There are no significant nonunit-level overhead costs.

A local dental laboratory has offered to supply Gray all the crowns it needs. Its price is $100 for porcelain crowns and $132 for gold crowns; however, the offer is conditional on supplying both types of crowns – it will not supply just one type for the price indicated. If the offer is accepted, the equipment used by Gray's laboratory would be scrapped (it is old and has no market value), and the lab facility would be closed. Gray uses 1,500 porcelain crowns and 1,000 gold crowns per year.

Required

Should Gray continue to make its own crowns or should they be purchased from the external supplier? Support your conclusion with proper documentation.

Chapter 21 Week 2 Session 2 Teresa Kerr

Benedictine University at Springfield
Managerial Accounting
Homework – CVP, Job Costing, ABC

1. **CVP exercises.** The Super Donut owns and operates six doughnut outlets in and around Kansas City. You are given the following corporate budget data for next year.

Revenues	$10,000,000
Fixed costs	1,700,000
Variable costs	8,200,000

Variable costs change with respect to the number of doughnuts sold.

Required

Compute the budgeted operating income for each of the following deviations from the original budget data. (Consider each case independently.)

a. A 10% increase in contribution margin, holding revenues constant
b. A 10% decrease in contribution margin, holding revenues constant
c. A 5% increase in fixed costs
d. A 5% decrease in fixed costs
e. An 8% increase in units sold
f. An 8% decrease in units sold
g. A 10% increase in fixed costs and a 10% increase in units sold
h. A 5% increase in fixed costs and a 5% decrease in variable costs.

2. **CVP exercises.** The Doral Company manufactures and sells pens. Currently, 5,000,000 units are sold per year at $0.50 per unit. Fixed costs are $900,000 per year. Variable costs are $0.30 per unit.

Required

Consider each case separately.

a. What is the present operating income for a year?
b. What is the present breakeven point in revenues?

Compute the new operating income for each of the following changes:

c. A $0.04 per unit increase in variable costs.
d. A 10% increase in fixed costs and a 10% increase in units sold.
e. A 20% decrease in fixed costs, a 20% decrease in selling price, a 10% decrease in variable cost per unit, and a 40% increase in units sold.

Compute the new breakeven point in units for each of the following changes:

f. A 10% increase in fixed costs.
g. A 10% increase in selling price and a $20,000 increase in fixed costs.

3. **CVP analysis, margin of safety.** Suppose Lattin Corp.'s breakeven point is revenues of $1,000,000. Fixed costs are $400,000.

Required

a. Compute the contribution margin percentage.
b. Compute the selling price if variable costs are $12 per unit.
c. Suppose 80,000 units are sold. Compute the margin of safety.

4. **CVP, target income.** Teddy Bear Daycare provides daycare for children Mondays through Fridays. Its monthly variable costs per child are:

Lunch and snacks	$100
Educational supplies	75
Other supplies	25
Total	$200

Monthly fixed costs consist of:

Rent	$2,000
Utilities	300
Insurance	300
Salaries	2,500
Miscellaneous	500
Total	$5,600

Teddy Bear charges each parent $600 per child.

Required

a. Calculate the breakeven point.
b. Teddy Bear's target operating income is $10,400 per month. Compute the number of children that must be enrolled to achieve the target operating income.
c. Teddy Bear lost its lease and had to move to another building. Monthly rent for the new building is $3,000. At the suggestion of parents, Teddy Bear plans to take children on field trips. Monthly costs of the field trips are $1,000. By how much should Teddy Bear increase fees per child to meet the target operating income of $10,400 per month, assuming the same number of children as in requirement b?

Overhead totals

Cost allocation Factor = DM, DL hours, Total Cost of DL

5. **Actual costing, normal costing.** Destin Products uses a job-costing system with two direct-cost categories (direct materials and direct manufacturing labor) and one manufacturing overhead cost pool. Destin allocates manufacturing overhead costs using direct manufacturing labor costs. Destin provides the following information:

Cost object

Direct materials

direct labor

	Budget for 2004	Actual Results for 2004
Direct materials costs	$1,500,000	$1,450,000
Direct manufacturing labor costs	1,000,000	980,000
Direct manufacturing overhead costs	1,750,000	1,862,000

normal

overhead 1,862,000 / 980,000 = 1.9

Required

a. Compute the actual and budgeted manufacturing overhead rates for 2004. $34.87 per machine hour

b. During March, the job-cost record for Job 626 contained the following information:

DM 40000
DL 30000

Direct materials used	$40,000
Direct manufacturing labor costs	$30,000

Applied OH 30000 · 1.9 = 57,000 | 127,000 total cost (actual)

Compute the cost of Job 626 using (1) actual costing and (b) normal-costing.

overhead Rate 1.9

c. At the end of 2004, compute the under- or- overallocated manufacturing overhead ~~under~~ normal costing. Why is there no under – or overallocated overhead under actual costing? actual job cost only end of fiscal year

6. **Actual costing, normal costing.** Consider the following selected cost data for the Pittsburg Forging Company for 2004:

1,862,000

Budgeted manufacturing overhead	$7,000,000
Budgeted machine-hours	200,000
Actual manufacturing overhead	$6,800,000
Actual machine-hours	195,000

Reconciliation

budget $130 under budget

Required

a. Compute the actual and budgeted manufacturing overhead rates for 2004.

b. During December, the job-cost record for Job 007 contained the following information:

1,000 · $35 = 35,000

Job cost 007

Direct materials used	$75,000
Direct manufacturing labor costs	$50,000

CM 35,000 160,000

Compute the cost of Job 007 using (1) actual costing and (b) normal-costing.

c. At the end of 2004, compute the under- or overallocated manufacturing overhead under normal costing. Why is there no under – or overallocated overhead under actual costing? under

normal

Rate DM 40000
DL 30000 · 1.75

175000 / 1,000,000 = 1.75

applied OH

127,000 − 122,500

p 55,250 = 122,500

7. **ABC, process costing.** Parker Company produces mathematical and financial calculators. Data related to the two products is presented below:

	Mathematical	Financial
Annual production in units	50,000	100,000
Direct materials costs	$150,000	$300,000
Direct manufacturing labor costs	$ 50,000	$100,000
Direct manufacturing labor-hours	2,500	5,000
Machine-hours	25,000	50,000
Number of production runs	50	50
Inspection hours	1,000	500

Both products pass through Department 1 and Department 2. The department's combined manufacturing overhead costs are:

	Total
Machining costs	$375,000
Setup costs	120,000
Inspection costs	105,000

Required

a. Compute the manufacturing overhead cost per unit for each product.

b. Compute the manufacturing cost per unit for each product.

8. **Cost smoothing or peanut-butter costing.** For many years, five former classmates – Steve Armstrong, Lola Gonzales, Rex King, Elizabeth Poffo, and Gary Young – have had a reunion dinner at the annual meeting of the American Accounting Association. The details of the bill for the most recent dinner at the Seattle Space Needle Restaurant break down as follows:

Diner	Entrée	Dessert	Drinks	Total
Armstrong	$27	$8	$24	$59
Gonzales	24	3	0	27
King	21	6	13	40
Poffo	31	6	12	49
Young	15	4	6	25
				200

For at least the last 10 dinners, King has put the total restaurant bill on his American Express card. He then mails the other four a bill for the average cost. They have shared the gratuity at the restaurant by paying cash. King continued this practice for the Seattle dinner. However, just before he sent the bill to the other dinners, Young phoned him to complain. He was livid at Poffo for ordering the steak and lobster entrée ("She always does that!") and at Armstrong for having three glasses of imported champagne ("What's wrong with domestic beer?").

8. (continued)

average cost is $40

Required

a. Why is the average-cost approach in the context of the reunion dinner an example of cost smoothing or peanut-butter costing?

b. Compute the average cost to each of the five diners. Who is undercharged and who is overcharged under the average-cost approach? Is Young's complaint justified?

Young only spent $25 and the others spent more.

c. Give an example of a dining situation in which King would find it more difficult to compute the amount of under – or overcosting. How might the behavior of the diners be affected if each person paid his or her own bill instead of continuing with the average-cost approach?

Combining the bill or one person pays it. Perhaps someone has more or less than another.

9. **Sales mix, two products.** The Goldman Company retails two products, a standard and a deluxe version of a luggage carrier. The budgeted income statement for next period is as follows:

3 to 1

	Standard Carrier	Deluxe Carrier	Total
Units sold	150,000 / 50,000	50,000 / 50,000	200,000
Revenues at $20 and $30 per unit	$3,000,000	$1,500,000	$4,500,000
Variable costs at $14 and $18 per unit	2,100,000	900,000	3,000,000
Contribution margins at $6 and $12 per unit	$ 900,000 / 50,000	$ 600,000	1,500,000
Fixed costs			1,200,000
Operating income			$ 300,000

Required

a. Compute the breakeven point in units, assuming that the planned sales mix is attained.

b. Compute the breakeven point in units (1) if only standard carriers are sold and (2) if only deluxe carriers are sold.

c. Suppose 200,000 units are sold, but only 20,000 of them are deluxe. Compute the operating income. Compute the breakeven point in units. Compare your answer with the answer to requirement a. What is the major lesson of this problem?

Let R = # of deluxe carriers

Rev = 30r

VC = 18r

SC

Rev = 3(20r)

VC = 3(14r)

FC = 1,200,000

$30r + 3(20r) - [18r + 3(14r)] - 1,200,000 = 0$

$30r + 60r - [18r + 42r] - 1,200,000 = 0$

$30r + 60r - 60r - 1,200,000 = 0$

$90r - 60r - 1,200,000 = 0$

$30r = 1,200,000$

$3r = 120,000$ Standard $r = 40000$ deluxe

Rev - VC - FC = OI

CM = 3R
CM = 2R
CM = 1R

A B C
20000 100000 80000
20000 1 80000 4 20000 1

10. The Ronowski Company has three product lines of belts: A, B, and C, with contribution margins of $3, $2, and $1, respectively. The president foresees sales of 200,000 units in the coming period, consisting of 20,000 units of A, 100,000 units of B, and 80,000 units of C. The company's fixed costs for the period are $255,000.

Let R = # of unit A
5R = # of unit B
4R = # of unit C

3R + 2(5R) + 1(4R) - 255,000 = 0
17R = 255,000
R = 15,000 A belts
5R = 75,000 B belts
4R = 60,000 C belts

Required

a. What is the company's breakeven point in units, assuming that the given sales mix is maintained?

b. If the sales mix is maintained, what is the total contribution margin when 200,000 units are sold? What is the operating income? 3(15000) = 45000

c. What would operating income be if 20,000 units of A, 80,000 units of B, and 100,000 units of C were sold? What is the new breakeven point in units if these relationships persist in the next period?

3(20,000), 2(80000), 100000
60,000 + 160000 + 100000 = 320,000 CM
FC 255,000
OI 65000

B 2(75000) 150,000
C 1(60000) 60000
CM 255000
FC (255000)
-0-

11. **CVP analysis, income taxes.** The Bratz Company has fixed costs of $300,000 and a variable-cost percentage of 80%. The company earns net income of $84,000 in 2004. The income tax rate is 40%.

Per item, the item increasing the contribution margine should be sold more for more profit. Each sale gains more profits.

Required

Compute (1) operating income, (2) contribution margin, (3) total revenues, and (4) breakeven revenues.

84000 ÷ 1 - .40 = OI .60 = 140,000 (.40)
.20R = 84000

12. **CVP analysis, income taxes.** The Rapid Meal has two restaurants that are open 24 hours a day. Fixed costs for the two restaurants together total $450,000 per year. Service varies from a cup of coffee to full meals. The average sales check per customer is $8.00. The average cost of food and other variable costs for each customer is $3.20. The income tax rate is 30 percent. Target net income is $105,000.

Rev 2,200,000
VC (1,760,000) 80%
CM 440,000
FC (300,000)
OI 140000
Tx (56.0) 40%
Net inc 84000

=> $1,000,000

Required

a. Compute the revenues needed to obtain the target net income.

b. How many customers are needed to break even? To earn net income of $105,000? => 93,750 customers

c. Compute net income if the number of customers is 150,000.

1,000,000 / $8 = 125,000 customers

SP 8.00
VC 3.20 = .40

Rev 1,000,000 $
VC (400,000) .40R
CM 600,000
FC (450,000)
OI
Tx ( ) 30%
Net in 105,000

720,000 Cont margin

R - .40R - 450,000 = 105,000 / 1 - .30 or .70
.60R - 450,000 = 150,000
.60R = 600,000
R = 1,000,000

Situation 9 ★

Whittier Company recently conducted a market study that revealed three different alternatives.

increase FC

Alternative 1: If advertising expenditures increase by $8,000, sales will increase from 1,600 units to 1,725 units.

Alternative 2: A price decrease from $400 per lawn mower to $375 per lawn mower would increase sales from 1,600 units to 1,900 units.

Alternative 3: Decreasing prices to $375 and increasing advertising expenditures by $8,000 will increase sales from 1,600 units to 2,600 units.

which is best compared to

Should Whittier maintain its current price and advertising policies, or should it select one of the three alternatives described by the marketing study?

Rev 1600 · 400 = (640,000

VC 1600 · 325 = (520,000)

CM 120,000

FC (45,000)

OI 75,000

Teresa Kerr

Benedictine University at Springfield
Accounting II Managerial Accounting
EXAM Session II

1. Sweet Sue, Inc. produces particularly rich praline fudge. Each ten-ounce box sells for $5.50. Variable costs are as follows:

Pecans	$0.75
Sugar	0.35
Butter	1.75
Other ingredients	0.24
Box, packing material	0.76
Selling commission	0.55

Fixed overhead cost is $24,000 per year. Fixed selling and administrative costs are $9,000 per year. Sweet Sue, Inc. sold 35,000 boxes last year.

Required

a. What is the contribution margin per box of praline fudge? What is the contribution margin ratio?
b. How many boxes must be sold to breakeven? What are the breakeven sales revenues?
c. What was Sweet Sue, Inc.'s income before taxes last year?
d. What was the margin of safety?
e. Suppose that Sweet Sue, Inc. raises the price to $6.00 per box, but anticipated sales will drop to 31,500 boxes. What will be the new breakeven point in units? Should Sweet Sue raise the price? Explain!

2. Alpha Company and Beta Inc. both use normal costing overhead rates to apply factor overhead to production. Alpha's is based on direct labor hours and Beta's is based on materials cost. Budgeted production and cost data for Alpha and Beta are as follows:

	Alpha	**Beta**
Manufacturing overhead	$240,000	$300,000
Units	10,000	20,000
Direct labor hours	6,000	7,500
Direct labor cost	60,000	75,000
Material cost	$150,000	$400,000

At the end of the year, Alpha Company had incurred overhead of $221,000 and had produced 9,800 units using 6,100 ($61,000)direct labor hours and materials costing $147,000.

Beta Inc. had incurred overhead of $316,500 and had produced 20,500 units using 7,550 ($75,500) direct labor hours and materials costing $411,000.

Required

a. Compute the (a) budgeted and (b) actual manufacturing overhead cost rates.
b. What is the job cost of the Alpha Company and Beta Inc. using (a) normal costing and (b) actual costing?

3. JJ Motors, Inc. employs 45 sales personnel to market their line of luxury automobiles. The average car sells for $23,000, and a 6 percent commission is paid to the salesperson. JJ Motors, Inc. is considering a change to the commission arrangement where the company Would pay each salesperson a salary of $2,000 per month plus a commission of 2 percent Of the sales made by that salesperson.

Let R = Rev $
VC = .06 · Rev or .06R
FC = -0-

Required

What is the amount of total monthly car sales at which JJ Motors would be Indifferent as to which plan to select?

4. Crunchy Morsels, Inc. manufactures and sells corn chips. Currently, Crunchy produces only one type of corn chip. The chips are packaged in 11-ounce bags and sold to retailers for $1.50 per bag. The variable costs per bag are as follows:

Corn	$0.70
Vegetable Oil	0.10
Miscellaneous ingredients	0.03
Selling	0.10

Let R = Rev $
VC = .2R
FC = 45000 · 2
90,000

Fixed manufacturing costs total $300,000 per year. Administrative (fixed) costs total $100,000.

R - .06R = R - .02R - 90,000
Solve for r

Required

a. Compute the number of bags of corn chips that must be sold by Crunchy to breakeven?
b. How many bags of corn chips must be sold for Crunchy to earn a before-tax profit of $150,000?
c. Assuming a tax rate of 60 percent, how many bags of corn chips must be sold to earn an after-tax profit of $284,000?

5. Kiltop Company produces a toy dart gun. The projected income statement for the coming year follows:

Sales	$480,000
Less: Variable costs	(249,600)
Contribution margin	$230,400
Less: Fixed costs	(180,000)
Operating income	$ 50,400

Required

a. Compute the contribution margin ratio for the toy gun.
b. How much revenue must Kiltop earn in order to breakeven?
c. What volume of sales must be earned if Kiltop wants to earn an after-tax income equal to 8 percent of sales? Assume that the tax rate is 34 percent.

6. Siberian Ski Company recently expanded its manufacturing capacity, which will allow it to produce up to 15,000 pairs of cross-country skis of the mountaineering model or the touring model. The sales department assures management that it can sell between 9,000 pairs and 13,000 pairs of either model this year. Because the models are very similar, Siberian Ski will produce only one of the two models.

	Per-Unit (Pair) Data	
	Mountaineering	Touring
Selling price	$88.00	$80.00
Variable costs	52.80	52.80

Fixed costs will total $369,600 if the mountaineering model is produced but they will be Only $316,800 if the touring model is produced. Siberian Ski is subject to a 40% income tax rate.

Required

a. If Siberian Ski Company desires an after-tax net income of $24,000, how many pairs of touring model skis will the company have to sell?
b. Suppose that Siberian Ski Company decided to produce only one model of ski. What is the total sales revenue at which Siberian Ski Company would make the same profit or loss regardless of the ski model it decided to produce?
c. If the Siberian Ski Company sales department could guarantee the annual sale of 12,000 pairs of either model, which model would the company produce and why?

set up just like #3

7. Swasey Company has identified the following overhead activities, costs, and activity drivers for the coming year:

Activity based costing method

Activity	Expected Cost	Activity Driver	Activity Capacity
Setup costs	$60,000	Number of setups	300
Ordering costs	45,000	Number of orders	4,500
Machine costs	90,000	Machine hours	18,000
Receiving	25,000	Number of parts	50,000

Assume for simplicity that each activity corresponds to a process. The following two jobs were completed during the year:

	Job 600	Job 700
Direct materials	$750	$850
Direct labor (50 hours per job)	$600	$600
Units completed	100	50
Number of setups	1	1
Number of orders	4	2
Machine hours	20	40

The company's normal activity is 4,000 direct labor hours.

Required

Using the ABC system, compute the total unit cost of each job.

8. Thompson Company produces scientific and business calculators. For the coming year, Thompson expects to sell 200,000 scientific calculators and 100,000 business calculators. A segmented income statement for the two products is given below:

	Scientific	Business	Total
Sales	$5,000,000	$2,000,000	$7,000,000
Less: Variable costs	(2,400,000)	(900,000)	(3,300,000)
Contribution margin	$2,600,000	$1,100,000	$3,700,000
Less: Direct fixed costs	(1,200,000)	(960,000)	(2,160,000)
Segment margin	$1,400,000	$ 140,000	$1,540,000
Less: Common fixed costs			(800,000)
Operating Income			$ 740,000

Required

a. Compute the number of scientific calculators and the number of business calculators that must be sold to breakeven.

b. Compute the number of scientific calculators and the number of business calculators that must be sold to achieve a $444,000 after tax income. Assume a 40% tax rate.

* give reason if you disagree * Teresa Kerr

Benedictine University at Springfield
Adult Accelerated Session
EXAM Session I

1. The following is a list of different costs of activity inputs:

   a. Power to operate a drill
   b. Engine in a lawn mower
   c. Advertising
   d. Sales commissions
   e. Fuel for a forklift
   f. Depreciation on a warehouse
   g. Depreciation on a forklift used to remove completed goods
   h. X-ray film used in a radiology department of a hospital
   i. Rental car provided for a client
   j. Amalgam used by a dentist
   k. Salaries, equipment, and materials for setting up production equipment
   l. Forms used to file insurance claims
   m. Equipment, labor, and parts used to repair and maintain production equipment
   n. Printing and postage for advertising circulars
   o. Salaries, forms, and postage associated with purchasing

   Required
   1. Classify the costs of activity inputs as **Variable (V), Fixed (F), or Mixed (M).**
   2. Classify the costs of activity inputs as **Direct (D) or Indirect (I)** costs.

2. The management of Fernelius Company has decided to develop cost formulas for its major overhead activities. Fernelius uses a highly automated manufacturing process, and power usage is considered a major activity. Power costs are a significant manufacturing cost. Cost analysts have decided that power costs are mixed; thus, they must be broken down into their fixed and variable elements so that the cost behavior of the power usage activity can be properly described. The following data for the past eight quarters have been collected:

Quarter	Power Costs	Machine Hours
1	$26,000 2600.0	20,000
2	38,000	25.000
3	42,500	30,000
4	37,000	22,000
5	34,000	21,000
6	29,000	18,000
7	36,000	24,000
8	40,000	28,000

   Required
   1. Prepare a scatterplot diagram. Fit a line to the data set; select two points and determine the cost function for power.
   2. Using the High-Low Method, compute the cost function for power.
   3. Using the Least Squares Method of linear regression, compute the cost function for power.
   4. Compute the expected power costs for 33,000, 29,000, and 17,500 machine hours using each of the three cost functions. Which cost function would you recommend? Explain.

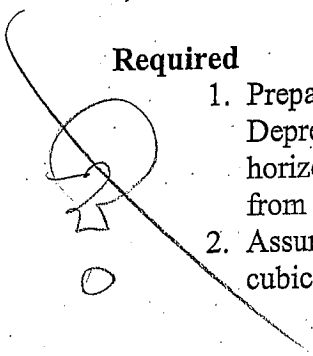
seperate graph for each cost just graphing

3. Smith Concrete Company owns ten ready-mix trucks. Each truck can deliver (on average) 10,000 cubic yards of concrete per year (considering the truck's capacity, weather, and distance to each job.) One driver per truck is needed. The labor cost of each driver is $25,000 per year. Depreciation on each truck averages $20,000. Raw materials (cement, gravel, and so on) cost about $25 per cubic yard of cement.

Yaxis 100,000 cubic yards

Required

1. Prepare a graph for each of the three costs: Truck Drivers' Wages, Truck Depreciation, and Raw Materials. Use the vertical axis for cost and the horizontal axis for cubic yards of cement. Assume that concrete sales range from 0 to 100,000 cubic yards.
2. Assume that the normal operating range for the company is 80,000 to 90,000 cubic yards per year. How would you classify each of the three types of cost?



3 cost functions value total cost plug in for x for all 3

4. Consolidated Minerals (CM) owns the rights to extract minerals from beach sands on Fraser Island. CM has costs in three areas:

   a. Payment to a mining subcontractor who charges $80 per ton of beach sand mined and returned to the beach (after processed on the mainland to extract three minerals: ilmenite, rutile, and zircon).
   b. Payment of a government mining and environmental tax of $50 per ton of beach sand mined.
   c. Payment to a barge operator. This operator charges $150,000 per month to transport each batch of beach sand – up to 100 tons per batch per day – to the mainland and then return to Fraser Island (that is, 0 to 100 tones per day = $150,000 per month; 101 to 200 tons per day = $300,000 per month, and so on).

   Each barge operates 25 days per month. The $150,000 monthly charge must be paid even if fewer than 100 tones are transported on any day and even if CM requires fewer than 25 days of barge transportation in that month. CM is currently mining 180 tons of beach sands per day for 25 days per month.

Required

   a. What is the variable cost per ton of beach sand mined? What is the fixed cost to CM per month?
   b. ~~Plot a graph of the variable costs and another graph of the fixed costs of CM. Is the concept of relevant range applicable to your graphs? Explain.~~
   c. What is the unit cost per ton of beach sand mined (a) if 180 tons are mined each day and (b) if 220 tons are mined each day? Explain the difference in the unit-cost figure.

5. Following is a list of various costs incurred in producing pizzas.

1. Refrigerant used in refrigeration equipment Fixed
2. Straight-line depreciation on the production equipment
3. Packaging
4. Property insurance premiums, $1,500 per month plus $0.005 for each dollar of property over $3,000,000
5. Property taxes, $50,000 per year on factory building and equipment
6. Pension cost, $0.50 per employee hour on the job
7. Hourly wages of inspectors
8. Dough
9. Hourly wages of machine operators
10. Janitorial costs, $3,000 per month
11. Rent on warehouse, $5,000 per month plus $5 per square foot of storage used
12. Tomato paste
13. Electricity costs, $0.08 per kilowatt-hour
14. Salary of plant manager
15. Pepperoni

Required

With respect to the production and sale of frozen pizzas, classify each cost as either **Variable (V), Fixed (F), or Mixed (M).**

6. Kalibob Electronics Company manufactures major appliances. It just had its most successful year because of increase interest in its refrigerators. While preparing the budget for next year, Arnelle Autrey, the company's controller, compiled these data:

Month	Volume in Machine Hours	Electricity Costs
July	6,000	$60,000
August	5,000	53,000
September	4,500	49,500
October	4,000	46,000
November	3,500	42,500
December	3,000	39,000

4333

Required

1. Using the Least-Square Method of linear regression, determine the cost function describing the above data.
2. Determine (a) the variable electricity cost per machine hour, (b) the monthly fixed electricity cost, and (c) the total variable electricity costs and fixed electricity costs for the six-month period.

7. Edgar Un, CPA, provides tax services in Oconomo. To prepare standard short-form tax returns, he incurred the following costs for the previous three months:

Direct professional labor: $50 per tax return

Service overhead (included telephone, depreciation on equipment and building, tax forms, office supplies, wages of clerical personnel, and utilities):

	January	$18,500
	February	20,000
	March	17,000
Number of tax returns prepared:	January	850
	February	1,000
	March	700

Create a cost function for cost overhead

Required

Don't include labor

1. Determine the variable and fixed cost components of the Service Overhead account. ~ Do not use tax return use Jan Feb Mar
2. What would be the estimated total cost per tax return if Hun's CPA firm prepares 825 standard short-form tax returns in April?

use Hi-Lo method

8. Linda Jones, accountant for Golding, Inc., has decided to estimate the fixed and variable components associated with the company's repair activity. She has collected the following data for the past six months: January, $800 total repair costs to 10 repair hours; February, 20 repair hours to $1,100 total repair costs; March, 15 repair hours to $900 total repair costs, April, $900 total repair costs to 12 repair hours; May, $1,050 total repair costs to 18 repair hours, and June, 25 repair hours to $1,250 total repair costs.

Repairs

1. Prepare a scatterplot diagram. Pick two points and create a cost function representing the data points.
2. Using the high-low method, create a cost function.
3. Using the regression method, create a cost function.
4. Which cost function (**if any**) estimates total repair costs to repair hours.