Relevant costs, contribution margin, product emphasis.

The Snack Shack is a take-out food store at a popular beach resort. Susan Sexton, owner of the Snack Shack, is deciding how much refrigerator space to devote to four different drinks. Pertinent data on these four drinks are as follows:

	Cola	Lemonade	Punch	Natural Orange Juice
Selling price per case	$18.80	$20.75	$26.90	$39.30
Variable cost per case	$13.80	$16.25	$20.10	$30.10
Cases sold per foot of shelf space per day	7	12	24	6

Sexton has a maximum front shelf space of 12 feet to devote to the four drinks. She wants a minimum of 1 foot and a maximum of 6 feet of front shelf space for each drink.

Required:

1. Calculate the contribution margin per case of each type of drink.
2. A coworker of Sexton's recommends that she maximize the shelf space devoted to those drinks with the highest contribution margin per case. Do you agree with this recommendation? Explain briefly.
3. What shelf-space allocation for the four drinks would you recommend for the Snack Shack? Show your calculations.

SOLUTION

1.

	Cola	Lemonade	Punch	Natural Orange Juice
Selling price	$18.80	$20.75	$26.90	$39.30
Deduct variable cost per case	13.80	16.25	20.10	30.10
Contribution margin per case	$ 5.00	$ 4.50	$ 6.80	$ 9.20

2. The argument fails to recognize that shelf space is the constraining factor. There are only 12 feet of front shelf space to be devoted to drinks. Sexton should aim to get the highest daily contribution margin per foot of front shelf space:

	Cola	Lemonade	Punch	Natural Orange Juice
Contribution margin per case	$ 5.00	$ 4.50	$ 6.80	$ 9.20
Sales (number of cases) per foot of shelf space per day	× 7	× 12	× 24	× 6
Daily contribution per foot of front shelf space	$35.00	$54.00	$163.20	$55.20

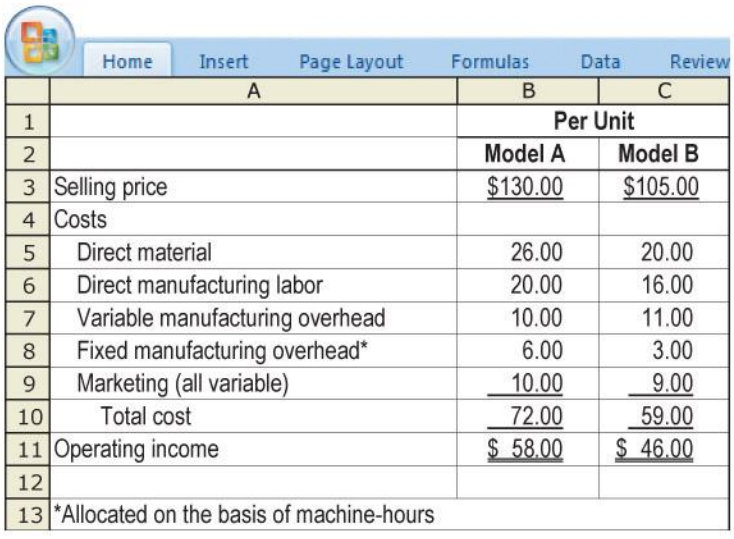
3. The allocation that maximizes the daily contribution from soft drink sales is:

	Feet of Shelf Space	Daily Contribution per Foot of Front Shelf Space	Total Contribution Margin per Day
Punch	6	$163.20	$ 979.20
Natural Orange Juice	4	55.20	220.80
Lemonade	1	54.00	54.00
Cola	1	35.00	35.00
			$1,289.00

The maximum of six feet of front shelf space will be devoted to Punch because it has the highest contribution margin per unit of the constraining factor. Four feet of front shelf space will be devoted to Natural Orange Juice, which has the second highest contribution margin per unit of the constraining factor. No more shelf space can be devoted to Natural Orange Juice because each of the remaining two products, Lemonade and Cola (that have the second lowest and lowest contribution margins per unit of the constraining factor), must each be given at least one foot of front shelf space.

Selection of most profitable product.

Fitness Gym, Inc., produces two basic types of weight-lifting equipment, Model 9 and Model 14. Pertinent data are as follows:



Home Insert Page Layout Formulas Data Review

	A	B	C
1		Per Unit	
2		Model A	Model B
3	Selling price	$130.00	$105.00
4	Costs		
5	Direct material	26.00	20.00
6	Direct manufacturing labor	20.00	16.00
7	Variable manufacturing overhead	10.00	11.00
8	Fixed manufacturing overhead*	6.00	3.00
9	Marketing (all variable)	10.00	9.00
10	Total cost	72.00	59.00
11	Operating income	$ 58.00	$ 46.00
12			
13	*Allocated on the basis of machine-hours		

The weight-lifting craze suggests that Fitness Gym can sell enough of either Model 9 or Model 14 to keep the plant operating at full capacity. Both products are processed through the same production departments.

Required:

Which product should the company produce? Briefly explain your answer.

SOLUTION

Note: In some print versions of the text, the column headings appear as Model A and Model B. The column headings in the problem should be Model 9 instead of Model A and Model 14 instead of Model B.

Only Model 14 should be produced. The key to this problem is the relationship of manufacturing overhead to each product. Note that it takes twice as long to produce Model 9; machine-hours for Model 9 are twice that for Model 14. Management should choose the product mix that maximizes operating income for a given production capacity (the scarce resource in this situation). In this case, Model 14 will yield a $49 contribution to fixed costs per machine hour, and Model 9 will yield $32:

	Model 9	**Model 14**
Selling price	$130.00	$105.00
Variable cost per unit*		
($26 + $20 + $10 + $10; $20 + $16 + $11 + $9)	66.00	56.00
Contribution margin per unit	$ 64.00	$ 49.00
Relative use of machine-hours per unit of product	÷ 2	÷ 1
Contribution margin per machine hour	$ 32.00	$ 49.00

*Variable cost per unit = Direct material cost per unit + Direct manufacturing labor cost per unit + Variable manufacturing cost per unit + Variable marketing cost per unit.