EXERCISES SECTION 2

1. TitanTech Ltd. produces high-performance tablets, generally selling from 150,000 to 250,000 units per year. The following cost data apply to the activity levels shown:

Number of Units	150,000	200,000	250,000
Total costs			
Fixed	$ 12,000,000		
Variable	18,000,000		
Total costs	$ 30,000,000		
Cost per Unit			
Fixed	$ 80		
Variable	120		
Total cost per unit	$ 200		

Required:
1.) Complete the preceding table by filling the missing amounts for 200,000 and 250,000 units.
2.) Assume TitanTech actually produces 230,000 units. What are the total costs and cost per unit at this level of activity?
3.) If each tablet is sold for $240, what is TitanTech's operating leverage at 230,000 units sold?

2. Vega Inc. and Orion Ltd. compete in the same market. The following budgeted income statements illustrate their cost structures.

	Vega Inc.	**Orion Ltd.**
Number of customers	250	250
Sales revenue (250 x $160)	$ 40,000	$ 40,000
Less variable costs	7,500	22,500
Contribution margin	$ 32,500	$ 17,500
Less fixed costs	26,000	12,500
Net income	$ 6,500	$ 5,000

Required:
(a) If Vega Inc. lowers its price to $140, it will lure 100 customers away from Orion Ltd. Prepare Vega's income statement based on 350 customers.
(b) If Orion Ltd. lowers its price to $140 (assuming that Vega Inc. continues to charge $160 per customer), Orion would lure 100 customers away from Vega. Prepare Orion's income statement based on 350 customers.
(c) Which of the companies would benefit more from lowering its sales price to attract more customers, and why?

3. Income statements for three companies are provided below:

	Nova Corp.		Altair Ltd.		Zenith Inc.	
Sales (25 units)	$	1,250	$	1,250	$	1,250
Less variable costs		750		375		-
Less fixed costs		250		625		1000
Net income	$	250	$	250	$	250

Required:
(a) Prepare new income statements for the firms assuming each sells one additional unit (i.e. each firm sells 26 units)
(b) Briefly describe the effect of cost structure on profitability.

4. World-renowned motivational speaker Dr. Lisa Hartman often charges up to $180,000 for a two-hour keynote address. She was recently invited to speak at an event hosted by the Global Education & Leadership Forum (GELF). Given the nonprofit mission of GELF, Dr. Hartman offered a reduced flat fee of $120,000.
GELF planned to invite 400 attendees, each expected to contribute $600. Concerned about the high upfront cost, the event coordinator proposed an alternative arrangement: Dr. Hartman would be paid 55% of the total revenue, with no other payments.

Required:

a) Classify the two payment options based on cost behavior (fixed vs. variable):

Scenario A: GELF pays Dr. Hartman a $120,000 flat fee:
Scenario B: GELF pays Dr. Hartman 55% of the seminar revenue:

b) Assuming no additional expenses, compute budgeted income under each scenario, assuming 400 attendees.
c) Suppose GELF increases attendance by 20% (to 480 attendees). For each scenario, calculate the percentage increase in profit.
d) For both 400 and 480 attendees, compute: Cost per attendee and Profit per attendee
e) Summarize the impact on financial risk and profit potential when shifting from a fixed-cost structure to a variable-cost structure.

5. Assume that Microsoft and Sony both plan to introduce a new hand-held video game. Microsoft plans to use a heavily automated production process to produce its product while Sony plans to use a labor-intensive production process. The following revenue and cost relationships are provided:

	Microsoft Game		Sony Game	
Selling price per unit	$	150	$	150
Variable costs per unit				
Direct materials	$	27.00	$	27.00
Direct labor	$	7.50	$	30.00
Overhead	$	7.50	$	30.00
Selling and administrative	$	3.00	$	3.00
Annual fixed costs				
Overhead	$	600,000	$	240,000
Selling and administrative	$	135,000	$	135,000

Required:
(a) Compute the contribution margin per unit for each company.
(b) Prepare a contribution income statement for each company assuming each company sells 8,000 units.
(c) Calculate net income for each firm if sales volume increases by 10%.
(d) Which firm will have more stable profits when sales change? Why?

6. Aurora Apparel Co. operates a chain of boutique clothing stores. Below are the company's reported operating results for 2023:

Income Statement		
Sales revenue	$	2,500,000
Cost of goods sold:	$	1,400,000
Gross margin	$	1,100,000
Employee commissions and bonuses (4% of sales)	$	(100,000)
Depreciation expense	$	(180,000)
Salaries expense	$	(320,000)
Shipping and delivery expense (2% of sales)	$	(50,000)
Advertising expense	$	(90,000)
Net income	$	360,000

Required: Prepare an income statement for Cannon Company using the contribution margin format.

7. The following contribution margin income statements are provided for two competing companies, Solis Inc. and Luna Ltd.:

	Solis Inc.		Luna Ltd.	
Revenue	$	820,000	$	820,000
Less variable cosrts	$	328,000	$	574,000
Contribution margin	$	492,000	$	246,000
Less fixed costs	$	442,000	$	201,000
Net income	$	50,000	$	45,000

Required:

1) Show each company's cost structure by inserting the percentage of the company's revenue represented by each item on the contribution income statement.
2) Compute each company's magnitude of operating leverage.
3) Using the operating leverage measures computed in requirement 2, determine the increase in each company's net income (percentage and amount) if each company experiences a 10 % increase in sales.
4) Assume that sales are expected to continue to increase for the foreseeable future, which company probably has more desirable cost structure? Why?