

Chapter 1 Managerial Accounting Overview

مراجعة

Management and financial Accounting

↳ Management Accounting ^{الحاسبة الإدارية}
↳ measure, analyzes, and report financial and nonfinancial information to help managers to make decisions
له تقيس وتحلل التقارير المالية وغير المالية لمساعدة المبراد في اتخاذ القرار

↳ Financial Accounting ^{الحاسبة المالية}
↳ focus on reporting the financial information to external users
له حيث تركز على تقديم التقارير المالية للمستخدمين الخارجيين

External Users → investors, creditors, banks, suppliers and government agencies

Management Accounting → Do not have to follow any standard

↳ Planning, Controlling, Decision making

Financial Accounting → it must follow GAAP

Management Accounting → Focus on influence the behavior of managers and employees

↳ Future-Oriented

Financial Accounting → ~~Focus~~ Focus on influence the behavior of external users

↳ Past-Oriented

Management Accounting

Planning
تخطيط

Controlling
التحكم

Decision making
اتخاذ القرار

□ Planning → Budgeting اعداد الموازنات

□ Controlling → □ make sure that plan are executed
لضمان تنفيذ الخطة

□ evaluation → Comparison between plans and actual performance

للمقارنة بين الخطة والتنفيذ الفعلي

□ Decision making → Five step منه

① □ Identify the problem and uncertainties
تحديد المشكلة

② □ Start to gathering information
جمع المعلومات

③ □ Make prediction عمل توقعات

④ □ Make Decision اتخاذ قرار

⑤ □ implement and evaluate the performance
لتنفيذ القرار وتقييم الأداء

□ The value chain

↳ The value chain is the sequence of business functions in which a product is made progressively more useful to Customer

له، وهي عبارة عن سلسلة، وكثافت اهل التي يهيج فيها المنتج
اكثر قيمة للعملاء بشكل تدريجي
له تتكون من مراحل ثابتة لترتيب

□ Research and Development

له، البحث، التطوير

□ Design of product and processes

له بشكل منتج، العمليات

□ production

التصنيع

□ Marketing

التسويق

□ Distribution

التوزيع

□ Customer service

خدمة العملاء

□ Planning and Controlling System (Budget)

↳ Planning → select goals and strategies
رفع الاهداف، الاستراتيجيات

□ predict result شوف النتائج

□ decides how to attain goals
تحدد كيفية الوصول للهدف

□ Communicate this to the Organization
نقل كل هذه الخطط الى المنظمة

↳ Budget → is the quantitative expression of a plan of Activity by management, and is an aid to Coordinating what need to be done to execute that plan

وهي عبارة عن تمويل، والتعبير عن الخطة على شكل ارقام بيوانظمة الادارة، وهي مساعدة لتنسيق ما يجب القيام به لتنفيذ تلك الخطة

→ Control → take actions that implement the planning decision, evaluate performance, and provide feedback

وهذا يعني ان تنفيذ يجب ان يتبع الخطة، وتقييم اداء واعطاء تغذية راجعة

Management Accounting Guidelines

↳ Three guidelines

1) Cost benefit approach → تكلفة، لفائدة
 ↳ Benefit of an actions must exceed Cost as a basic decision rule

له يعني لفائدة من النشاطات يجب ان تتفوق التكلفة

2) Behavioral and technical Considerations → الاعتبارات السلوكية، الفنية

↳ people are involved in decision, not just dollar and cent

له يعني ان الناس ايضاً مهمين في القرارات وليس فقط النقود

3) Different Cost for Different purpose → تكاليف مختلفة لاصناف مختلفة

↳ Managers use alternative ways to Compute Cost in different decision making situation

له يتضمن المبررات طرقاً بديلة لحساب التكاليف في مواقف اتخاذ القرار المختلفة ← فقط التكاليف ذات القيمة ذات العلاقة

Professional Ethics → (اخلاقيات المهنة) الاخلاقيات

↳ The Four standard of ethics

(IMA) → Institute of Management Accountant

1) Competence مواكبة التطور / مواكبة التغييرات

2) Confidentiality السرية، السامية

3) Integrity النزاهة، عدم التحيز

4) Credibility المهنية في المعلومات

Simple
Account

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Chapter 3 Cost-Volume-Profit Analysis [CVP]

نوع

Service Companies

Manufacturing Companies

↓
Intangible product
Service

↓
Tangible product
Goods

Balance sheet
No Inventory
No Cost of Good sold

Balance sheet
Inventory
and Cost of good sold

Merchandising
Companies

Manufacturing
Companies

Sales
- COGS
Gross profit

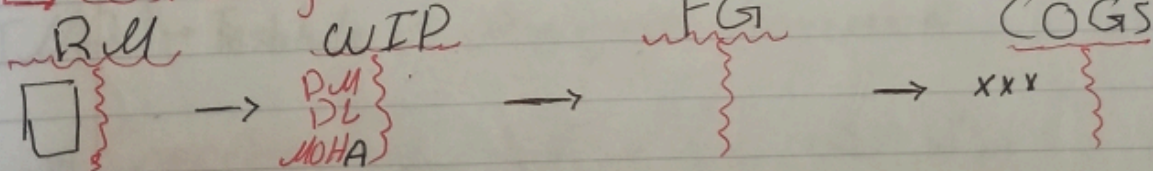
Sales
- COGS
Gross profit

Inventory
↳ Merchandise
نوع واحد فقط

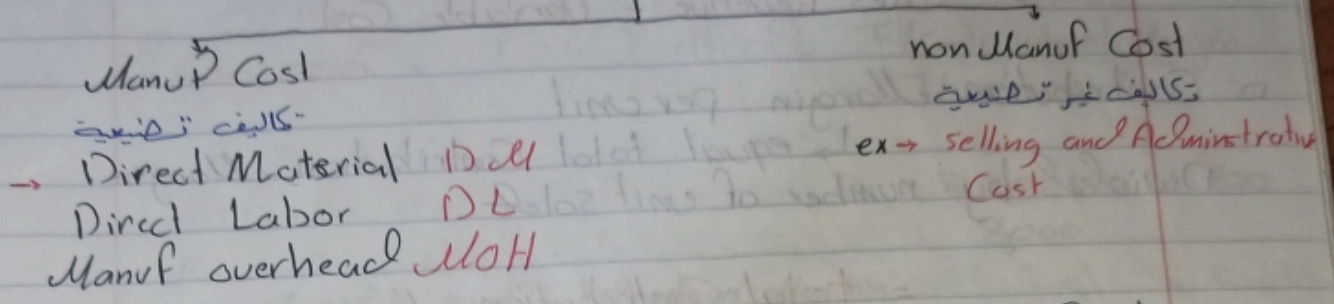
Inventory → raw material
work in process
finished good

→ Manufacturing Companies
↳ Cost of good sold

المكونات الإنتاجية



Manufacturing Companies Cost



- Manufacturing Cost**
- DM → variable Cost
 - DL → variable Cost
 - MOH → variable and Fixed Cost

ويطبق فقط داخل الشركة لا يتبع المبدأ Matching

variable Costing

- sales
- variable COGS
- variable selling and Admin

Contribution Margin

- Fixed COGS
- Fixed selling and Admin

Operating income

متبع GAAP

Full Absorption Costing

- sales
- Cost of Good sold
- = Gross profit
- Operating expense
- = Operating income
- non operating expense
- + non operating profit

Income before tax

- tax

net income

IBT

80
20

3]

□ Contribution Margin → equal Revenue Less variable Cost
= Sales Revenue - Variable Cost

□ Contribution Margin per unit
↳ equal total Contribution Margin
Divided by number of unit sold
= $\frac{\text{total Contribution Margin}}{\text{number of unit sold}}$

□ Example → XYZ Company

مثال

- selling price \$1,000
- variable manuf / unit \$200
- variable marketing cost / unit \$100
- Fixed MOH \$50,000
- Fixed Marketing Cost \$20,000

→ During 2020 → XYZ produced 10,000 unit
sold 8,000 unit

Variable Costing

→ Sales (1000 x 8000)	8,000,000
Less v. COGS (8000 x 200)	(1,600,000)
Less v. Marketing (8000 x 100)	(800,000)
<hr/>	
Contribution Margin	5,600,000
Less Fixed MOH	(50,000)
Less Fixed M/Cost	(20,000)
<hr/>	
Operating income	5,530,000

Contribution Margin as a total vs Contribution Margin as a per unit

→ 5,600,000

$$\frac{\text{Total Contribution Margin}}{\text{Total unit sold}} = \frac{5,600,000}{8,000} = 700$$

Contribution Margin per unit

$$= \text{Selling price} - \text{Variable Cost / unit}$$

$$= 1,000 - 300$$

$$= \underline{700}$$

Contribution Margin → is the amount of revenue available after variable cost to cover a fixed expense and provide profit to a company

↓ عبارة عن محل لإيرادات يتناقص بعد نفقاته المتغيرة لتغطية النفقات الثابتة وتوفير الربح للشركة

بمعنى آخر، حسب المثال ← كل ما يبيع وحدة زيادة ربح يكون عندي 700 دولار زيادة لتغطية النفقات الثابتة

↳ profit from each extra unit sold

800

$$\left(\text{selling price} \times \text{Quantity of unit sold} \right) - \left(\text{unit v/cost} \times \text{Quantity of unit sold} \right) - \text{Fixed Cost} = \text{Operating income}$$

Ex 8 Emma $\left\{ \begin{array}{l} \text{Purchase Price / unit} = \$120 \text{ variable} \\ \text{selling Price / unit} = \$200 \end{array} \right.$

Convention (معرض) Booth [كشك] = 2,000 fixed

حيث ان "Emma" قامت بعد اتفاق مع الجامعة الامريكية من اجل جذب الكفاءات بعد امتحان القبول Guil من خلال بيع ال (ID) للطلاب الذين يصعب عليهم الوصول لهذا مركز له وقامت باستثمار كشك في معرضها لمدة اسبوع / اشهر للتسويق لهذا المنتج

Scenario 1 \rightarrow if Emma sell 5 unit

Sales	(5 x 200)	1,000
Less variable Cost	(5 x 120)	(600)
<hr/>		400
Contribution margin		
Less Fixed Cost		(2,000)
<hr/>		1,600
Operating Loss		

Scenario 2 \rightarrow if Emma sell 20 unit

sales	(20 x 200)	4,000
- variable Cost	(20 x 120)	(2,400)
<hr/>		1,600
Contribution margin		
- Fixed Cost		(2,000)
<hr/>		400
Operating Loss		

ب.د

ب.د

□ Break even point

↳ At BEP the firm has no profit or loss at the given sales level

→ Total Revenue = total Cost

→ Profit = 0

→ (المعادلة) (بالتفصيل)

↳ (Sales - variable Cost) - Fixed Cost = 0 Operating income

↳ (Selling price x Unit sold) - (variable Cost per unit sold) - Fixed Cost = 0 BEP

Q → Quantity

↳ Q (Selling Price - VC per unit) - FC = 0 BEP

↳ Q x Contribution Margin per unit - FC = 0 BEP

↳ Q x CM/unit = FC

Q(BEP) = FC / CM/unit

هذا الرقم

ب.د

!!

تكلفة بـ

$$Q \text{ (BEP)} = \frac{2000}{30} = 25 \text{ unit}$$

53

↳ if Emma sold 25 unit

Sales	25 x 200	5000
- variable Cost	25 x 120	(3,000)

Contribution margin	2000
- Fixed Cost	(2000)

Operating incom \circ BEP

↳ if Emma want to earn 4,400 as a profit

→ Q, target operating income of 4,400 ?

$$\rightarrow (\text{سـتـقـاـت}) \rightarrow \left(\frac{\text{selling price} \times Q}{\text{price}} \right) - \left(\text{VC/unit} \times Q \right) - FC = \text{Operating income}$$

$$\rightarrow Q \times \text{CM/unit} - FC = 4,400$$

$$Q \times \frac{\text{CM/unit}}{\text{CM/unit}} = \frac{6,400}{\text{CM/unit}} = \frac{6,400}{30} = 80$$

$$Q \text{ to achieve a target operating incom} = \frac{FC + \text{Target Operating income}}{\text{Contribution margin / unit}}$$

قانون !!

□ Contribution margin percentage

CMP → which is the Contribution margin per unit divided by unit selling price or Contribution margin divided by revenue

$$CMP = \frac{CM \text{ / unit}}{\text{selling price}}$$

قانون م

$$CMP = \frac{CM}{\text{Revenue}}$$

OP

القانون ا

$$CMP = \frac{80}{200} = 0.4$$

0.4

منها يعني كل unit بيجه يبقى 0.4 لتغطية ال FC

سواء ما عكس حساب ال BEP تعدله

$$100\% \text{ of sales} - VC = \frac{CM}{0.4} - FC = 0$$

$$\text{Break even Revenue} = \frac{\text{Fixed Cost}}{\text{Contribution Margin percentage}}$$

قانون م

$$BER = \frac{2000}{0.4} = 5000$$

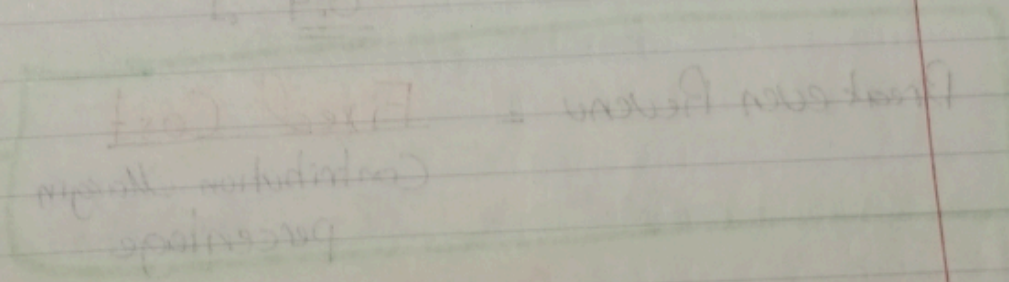
□ to achieve a target operating income as a Dollar value

$$= \frac{FC + \text{Target Operating Income}}{\text{CM percentage}}$$

قانون ~~FC~~

$$= \frac{2000 + 4,400}{0.4} = \frac{6,400}{0.4} = 16,000$$

Total sales as a Dollar value



$$\text{BTR} = \frac{2000}{0.4} = 5000$$

- produce = 10,000 unit
 □ sales (4000 unit) = 120,000
 □ variable expense = 72,000
 □ Fixed expense = 30,000

□ Q - Compute the quantity that must be sold to Break even?

↳ selling Cost per unit = $\frac{120,000}{4000} = 30$

↳ variable Cost / unit = $\frac{VC}{4000} = \frac{72,000}{4000} = 18$

↳ Contribution margin / unit = $30 - 18 = \underline{12}$

or

↳ $\frac{C_{ell}}{4000} = \frac{120,000 - 72,000}{4000} = \underline{12}$

↳ $Q_{BEP} = \frac{30,000}{12/unit} = 2,500$

□ Q - Compute the amount of sales in dollar to achieve an operating income = 12,000

↳ $CMP = \frac{C_{ell}/unit}{Selling\ price/unit} = \frac{12}{30} = 0.4$

↳ sales to achieve a target = $\frac{30,000 + 12,000}{0.4} = 105,000$

Q - what dollar sales must the Company achieve in order to earn a net income of 50,000 per month
Assume tax Rate = 40%

↳ Operating income - tax expense = net income

tax Rate \times Op/income
(0.4)

$$X - 0.4 = 50,000$$

$$0.6 X = 50,000$$

$$X = \frac{50,000}{0.6} = 83,333$$

$$\text{Operating income} = \frac{\text{net income}}{1 - \text{tax Rate}}$$

Then \rightarrow Dollar sales

to achieve target = $\frac{FC + 83,333}{\text{Cell percentage}}$

Op. income of
83,333

$$= \frac{30,000 + 83,333}{0.4} = 283,333$$

E. Alkhalaf ماذا لو

what if? ماذا لو

- ↳ purchased Cost = 120
- selling price = 200
- Booth rent = 2000

↳ Break even point = 25 unit

States (sell 40 unit)

Sales	40 x 200	8000
- variable Cost	40 x 120	4,800
<hr/>		
Cont. Margin	(80 x 40)	3,200
- Fixed Cost		2000
<hr/>		
Operating income		1,200

Alternative

Advertising expense 5,00 → Fixed Cost

↳ sales will increase 10%

↳ 40 x 10% = 4 → 44 x 200 = 8,800

Sales	44 x 200	8,800
- VC	44 x 120	(5,280)
Con		3,520
- FC		(2000)
- Advertising Cost		(500)
Opel income		1,020

Decrease by 180

~~320~~

النتيجة السعر

↳ Cost will increase = 500

↳ Cell will increase = ?

→ Cell/unit = (200 - 120) = 80

Cell 4 x 80 = 320 ↑ vs FC 500 ↑

إذا ربح يكون عن خسارة

↳ 500 - 320 = 180 ↓

↳ 1,200 - 180 = 1,020

Alternative → to reduce the selling price تخفيض السعر

لحفاظت EUMMA بدتفاف مع، كما هو على تغيير الأسعار

purchase price = 115

Selling price = 175

↳ and she will increase its sales to 50 unit

Cell (عنا، ببيع) (عنا، ببيع)

Cell = 40 x 80 = 3200

Cell (عنا، ببيع) (عنا، ببيع)

Cell = 50 x 60 = 3000

Operating income will decrease by = 200

selling price to achieve a target op. income of 1,200

↳ purchase Cost / unit = 115

and she will sale ~~40~~ ~~45~~ 50 unit

↳ sales - VC - FC = Op. incom

$Q (Cm/unit) - FC = 1200$

$50 \times Cm/unit - 2000 = 1200$
+ 2000 + 2000

$\frac{50 \times Cm/unit}{50} = \frac{3,200}{50}$

Cm/unit = 64

Cm/unit = selling price - variable Cost/unit

64 = ? - 115

Selling price = 115 + 64
= 179

□ Margin of safety - Defined هامش امان

↳ That means how far can they fall in sales before the company will begin to lose money
 له يعني تم فسمح لي بالنزول بالبيعات قبل ان تبدأ الشركة
 بالالخسارة

↳ An indicator of risk, the Margin of safety (MOS)

↳ it's measure the distance between budgeted sales and Break even sales

معبارة من مؤشور مخاطرة ← كل ما ينقل الخطورة بتزيد
 له يعني تقيس وين انا موجود ودين البيعات ابي
 عندما ما يربح ولو بنفس

$$MOS = \text{Budgeted sales} - BE \text{ sales}$$

→ Emma sales 40 unit

$$BEP_Q = \frac{FC}{\text{Con}/\text{unit}} = \frac{2000}{80} = 25 \text{ unit}$$

$$MOS = 40 - 25 = \underline{\underline{15 \text{ unit}}}$$

□ At 40 unit, total sales = $40 \times 200 = 8000$

$$BEP_{\text{sales}} = 25 \times 200 = 5000$$

$$MOS = 8000 - 5000 = \underline{\underline{3000}} \rightarrow \underline{\underline{\text{أكد فسمح بالنزول}}}$$

MOS percentage = $\frac{\text{MOS}}{\text{Sales}}$

MOS = 3000

MOS Percentage = $\frac{3000}{8000} = 37.5\%$

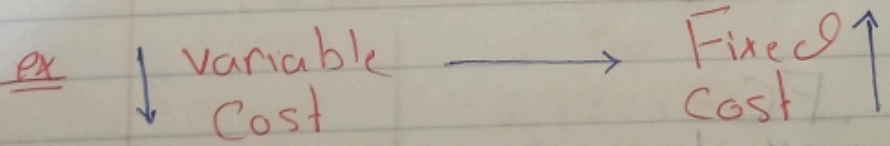
هذا يعني انه يوجد في مجال انزل بالمبيعات
نسبة 37.5% سابق بال safe side

MOS percentage → remove the firm's size from the output, and expresses it self in the form of percentage

Cost structure

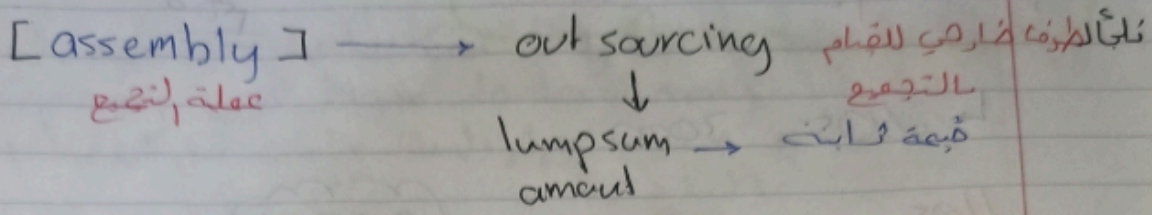
The Cost structure is simply the relationship of fixed cost and variable cost to the total cost
العلاقة بين التكاليف الثابتة والتكاليف المتغيرة والتكاليف الإجمالية

Total Cost = FCI + VC
هل يتغير بتغير نسبة VC و FCI؟
Yes



↓ DL → more automated manuf. environment (تكنولوجيا تصنيعية)

ex → Part of production



↓ VC → FC ↑

Q ← ما هو الرفع / الهدف من تغيير نسبة التكاليف؟
 لـ تحديد الـ ←
 Risk ← نظر

Profitability margin ← الربح

Q ← بالرجوع إلى مثال Emma

variable cost = 120
 selling price = 200
 Fixed cost = 2000

Contribution margin / unit = 200 - 120
 = 80

Break even point = $\frac{FC}{\text{Contribution margin/unit}}$

$= \frac{2000}{80} = \underline{\underline{25 \text{ unit}}}$

Option 2

300 → Fixed Fee for Booth Rent

% 15 from sales → For management (if sell vol)

↳ FC ↓ ↔ VC ↑

↳ selling price = 200 → 15% of 200 for manag.

$15\% \times 200 = 30$

↳ new VC = $120 + 30 = 150$

↳ new Cell = $200 - 150 = \underline{50}$

↳ new Break even point = $\frac{300}{50} = \underline{6}$

Option 3

↳ Zero Booth Rent → FC = 0

↳ 25% from sales → For management

↳ new VC = $25\% \times 200$
 $= 50$
 $= 120 + 50$
 $\rightarrow = \underline{170}$

↳ new Cell = $200 - 170$
 $= \underline{30}$

new BEP = $\frac{0}{30} = \underline{0}$ zero

□ Compare مقارنة

	BE P	CM / unit
Option 1	25 unit	80
Option 2	16 unit	50
Option 3	0 unit	30

□ The least Risky is option 3

لأنه يوجد فيه أقل نسبة في حد عدم البيع

□ The most profitable is option 1

↳ if FC ↓ → Risk ↓

↳ if Risk ↑ → Return ↑

Operating Leverage (OL) الرافعة التشغيلية

↳ Describes the effect that fixed costs have on changes in operating income as changes occur in unit sold and Contribution margin

لماذا تصف الرافعة التشغيلية تأثير التكاليف الثابتة على التغيرات في الدخل التشغيلي - حيث تحدث التغيرات في لومات البيع، وكميات البيع
(Unit sold) (Cell)

$$OL = \frac{\text{Contribution margin}}{\text{Operating income}}$$

بالرغم من التغير في التكاليف

if unit sold was 40 units

SC.1

Cell/unit = 80

→ Cell = 40 x 80
= 3,200
Less FC 2,000

O/income = 1,200

DO L = $\frac{3,200}{1,200}$
= 2.67

SC.2

Cell/unit = 50

→ 50 x 40
= 2000
Less 800

1,200

$\frac{2000}{1200}$
1.67

SC.3

Cell/unit = 30

40 x 30
= 1200
less 0

1200

$\frac{1200}{1200}$
1

هذا يعني ان الرافعة

2.67 ← كل تغير في حجم المبيعات يقابله 2.67 تغير في الدخل التشغيلي

□ if FC ↑ → DOL ↑

under SC.1 sales increase by 50%

Operating income?

$0.5 \times 2.67 = 1.33$

$O/income = 1200 \times 1.33$
 $(40) = 1,600$

→ 50% x 40 = 20 unit increases.

$= 40 + 20 = 60 \text{ unit}$

$CM = (60 \times 80) = 4,800$

Less FC = (2,000)

$O/income = 2,800$

1,200 vs

↳ it increase by

$1,600\%$

□ if fixed Cost = zero

↳ $\frac{CM}{O/income} = 1$

$CM = \text{Operating income}$

□ Using OL to estimate change in operating income
 ↳ The formula to estimate the change in operating income that will result from a percentage change in sales is:

Operating Leverage × % change in Sales

if sales increase 50% and operating Leverage is 1.67

↳ you should expect operating income to increase 83.5%

□ Effects of sales MIX on CVP

لأنه في حال كانت الشركة تبيع أنواع مختلفة من المنتجات

↳ In this case, we use the same formulae, but use Average Contribution margins for the multiple product

بالرغم من أن المال: Emma

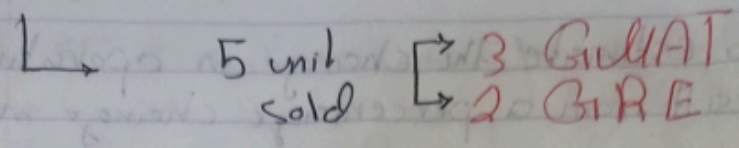
# GUMAT	200 - 120 = 30	Cell/unit	} → two <u>product</u>
# GRE	100 - 70 = 30	Cell/unit	

↳ Fixed Cost = 4,500 → BEP ?

نقطة 10 unit sold } → 6 GUMAT } → Constant
 ↳ 4 GRE } ثابتة

~~2/4/24~~

بالنسبة الى ← to estimate changes in contribution margin

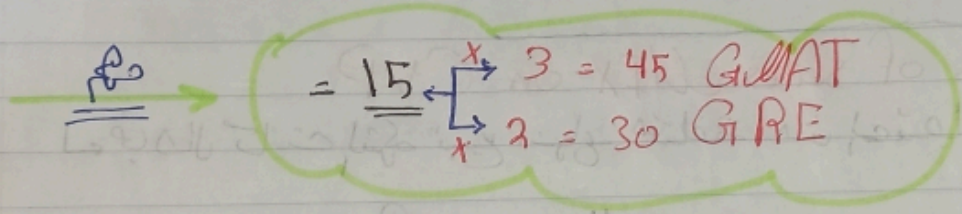


$$\text{Cell / bundle} = (3 \times 80) + (2 \times 30)$$

$$= 240 + 60$$

$$= \underline{\underline{300}}$$

$$\text{BEP}_{(\text{Bundle})} = \frac{4,500}{300}$$



Constant sales mix مصروفيات لكل منتج

→ Limited مابينه

GullAT = 200 - 150 = 50
 # GRE = 100 - 70 = 30

Fixed Cost = 4500 → BEP @ 15

10 unit sold → 4 GRE + 3 GullAT

□ حل السؤال → selling price = 7000
 V.C/unit = 2000
 F.C = 5,560,000
 Net income = 900,000
 income tax
 Rate = 40%

Q II a) BEP
b) U/ to achieve net income objective
 if no change happened

a) Cell/unit = $7000 - 2000$
 = 5000

BEP = $\frac{F.C}{Cell/unit} = \frac{5,560,000}{5000}$
 = 1,112 unit

b) Operating income = $\frac{900,000}{1 - 40\%} = 1,500,000$

Q to achieve
 o/income = $\frac{5,560,000 + 1,500,000}{5000}$
 of 1,500,000

→ = 1,412

[15]

[25]

Q2) Q → Determine which alternative the Company should select to achieve its net income objective

A) → reducing selling price 15% $7000 \times 15\% = 1050$

$$\hookrightarrow 7000 - 1050$$

$$= \underline{5950}$$

$$\Rightarrow \text{unit sold} = \underline{1,400}$$

$$\Rightarrow \text{CM/unit} = 5950 - 2000$$

$$\hookrightarrow = \underline{3,950}$$

$$\Rightarrow \text{CM} = (\underline{300 \times 5000}) + (1,400 \times 3950)$$

القائمة

$$= 1,500,000 + 5,530,000$$

$$= 7,030,000 - 5,560,000$$

$$\text{operating income} = 1,470,000 \times 60\%$$

$$\text{Net income} = \underline{\underline{\text{P}882,000}}$$

$$B) \rightarrow \text{New variable Cost} = 1250$$

$$\rightarrow \text{New selling price} = 6,200$$

$$\rightarrow \text{unit sold} = 1,130 \text{ unit}$$

$$\rightarrow \text{Cell/unit} = 6200 - 1250 \\ = \underline{4,950}$$

$$\rightarrow \text{Cell} = (300 \times 5000) + (1,130 \times 4,950)$$

$$= 7093,500$$

$$\text{Less FC} = (5,560,000)$$

$$\text{Op/income} = 1,533,500 \times 60\%$$

$$\text{Net income} = \underline{920,100}$$

$$C) \rightarrow \text{New Fixed Cost} = 5,282,000$$

$$\rightarrow \text{New selling price} = 5,250$$

$$\rightarrow \text{unit sold} = 1,500$$

$$\rightarrow \text{Cell/unit} = \underline{3250}$$

$$\text{Cell} = (300 \times 5000) + (1,500 \times 3,250)$$

$$= 6,375,000$$

$$\text{less FC} = (5,282,000)$$

$$\text{Op/income} = 1,093,000 \times 60\%$$

$$\text{Net income} = 655,800$$

\rightarrow B is the Best choice