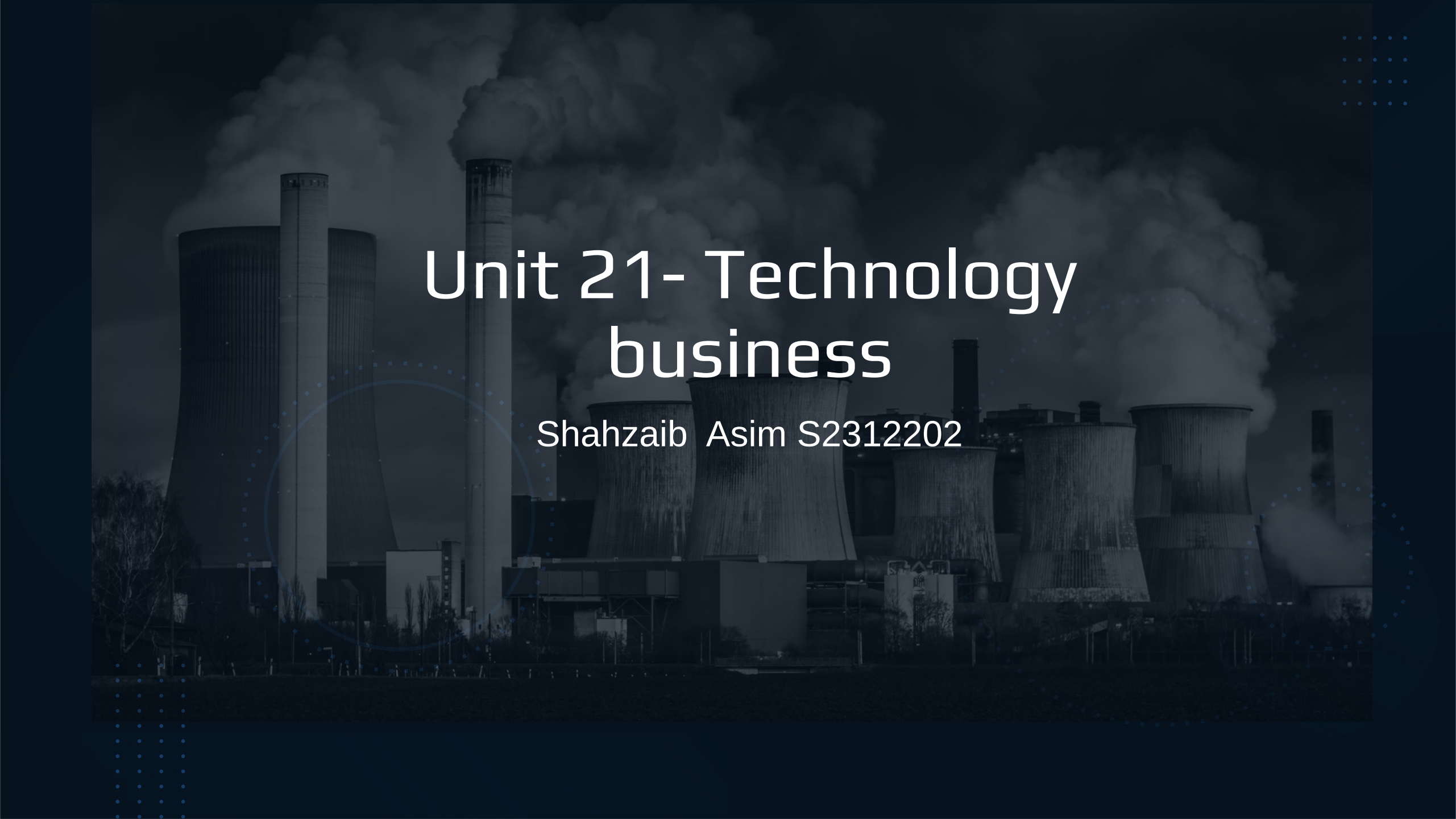




# Unit 21- Technology business

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# Breakeven Analysis

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Breakeven analysis shows the level of output or sales needed for a business to cover all its costs.

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Key parts of breakeven analysis

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**Fixed costs** – costs that do not change with output (e.g. rent, salaries, marketing)

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**Variable costs** – costs that change with output (e.g. components, packaging)

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**Revenue** – money earned from sales

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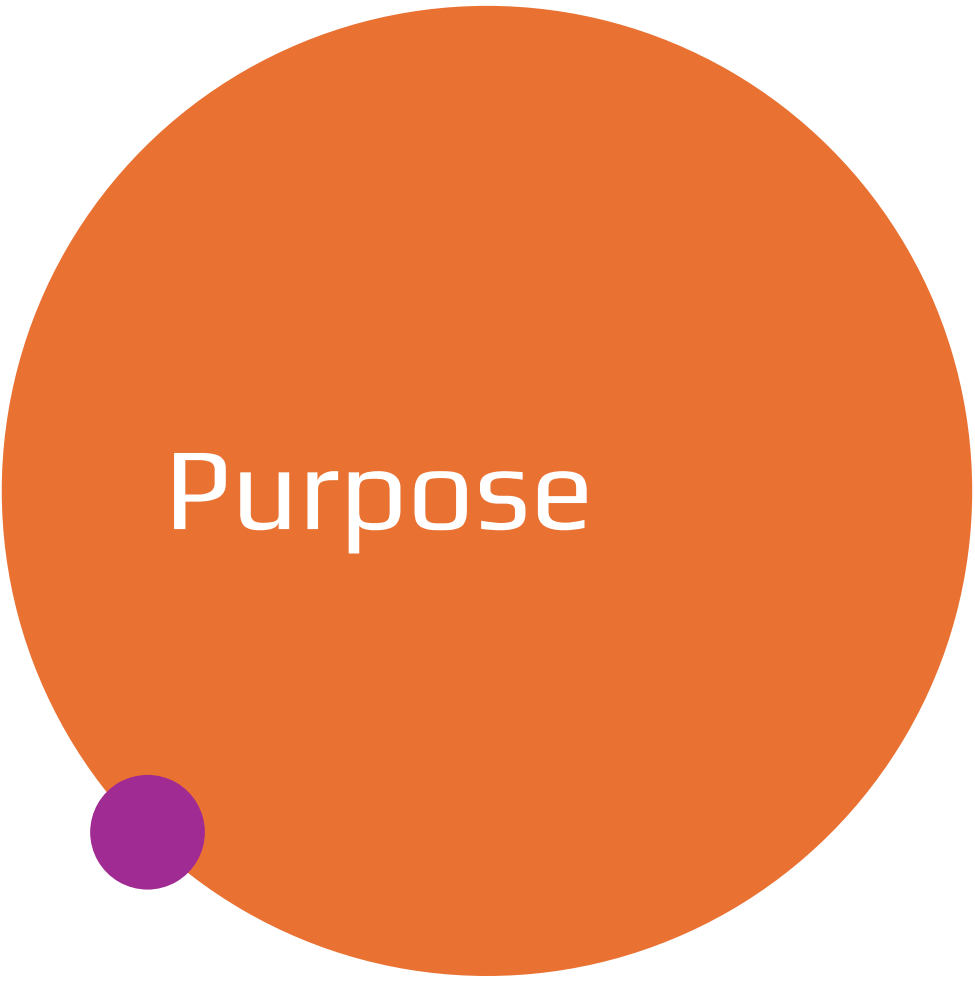
**Contribution** – selling price minus variable cost

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**Breakeven point** – the number of units needed to cover all costs

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# Purpose

- My Company has carried out a breakeven analysis for the iPhone 18 Pro Max to check if the product is profitable and to calculate the minimum number of units that must be sold to cover all costs.

# To produce a breakeven analysis My company has made the following assumptions

| Components                  | Value/costs | Description                                                         |
|-----------------------------|-------------|---------------------------------------------------------------------|
| Selling price per unit      | £1,399      | Competitive price compared with other premium smartphones           |
| Variable cost per unit      | £1,100      | Includes components (£1,000) + packaging (£50) + distribution (£50) |
| Fixed costs per month       | £20,000     | Includes research, factories, staff salaries, marketing, software   |
| Expected monthly sales      | 200 units   | Market research survey                                              |
| Maximum production capacity | 600 Units   | Manufacturing capacity                                              |

## CALCULATIONS VARIABLE COSTS

Formula:

$$\text{Total Variable costs} = \text{Variable cost per unit} \times \text{Number of units}$$

Example for 200 units

$$£1,100 \times 200 = £220,000$$

Calculations  
Total costs

Formula:

$$\text{Total costs} = \text{Fixed costs} + \text{Variable costs}$$

Example for 200 units

$$£20,000 + £220,000 = £240,000$$

Calculations  
Revenue

Example for 200 units

Formula:

$$\text{Revenue} = \text{Sales Volume} \times \text{Selling price}$$

$$200 \times £1,399 = £279,800$$

Calculations  
Profit/loss

Formula:

$$\text{Profit/loss} = \text{Revenue} - \text{Total costs}$$

Example for 200 units

$$£279,800 - £240,000 = £39,800$$

Calculations  
Breakeven

Example for 200 units

Formula:

Breakeven point =

Fixed Costs

Selling Price – Variable cost

£20,000

£20,000

£20,000

£20,000

£1,399

-£1,100

£299

£299

66.89 units

Rounded up:

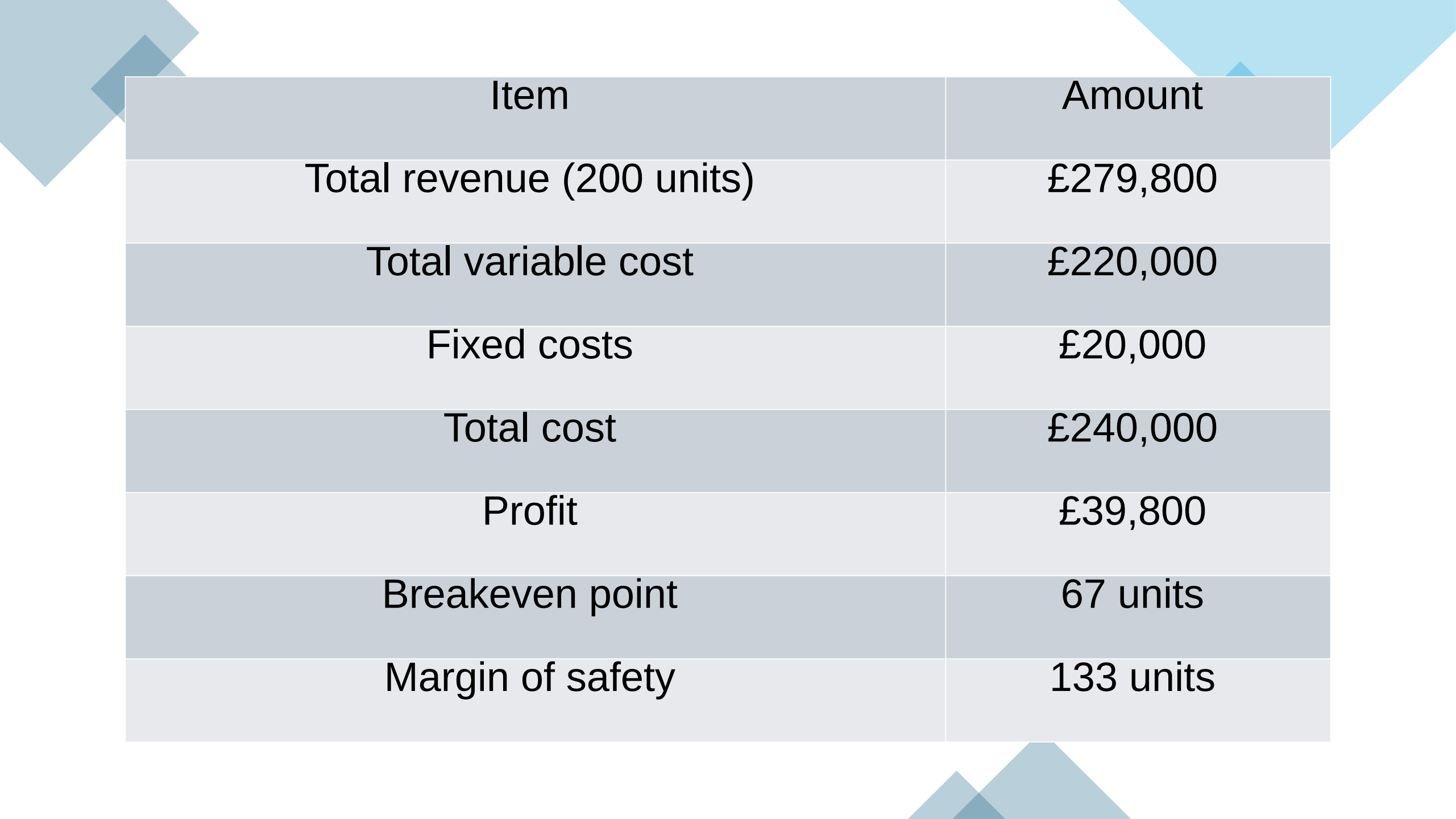
Breakeven point = 67

Calculations  
Margin of safety

Formula:

| Components             | Value  | Cost   | Left   | Total  |
|------------------------|--------|--------|--------|--------|
|                        |        |        |        | £1,399 |
| Battery                | £50    | £50    | £1,349 | £1,399 |
| Processor              | £150   | £150   | £1,199 | £1,349 |
| Camera system          | £180   | £180   | £1,019 | £1,199 |
| Face id sensors        | £40    | £40    | £979   | £1,019 |
| Screen                 | £200   | £200   | £779   | £979   |
| Ram                    | £30    | £30    | £749   | £779   |
| Storage                | £80    | £80    | £669   | £749   |
| Motherboard            | £60    | £60    | £609   | £669   |
| Speaker and Microphone | £20    | £20    | £589   | £609   |
| Charging Port type-C   | £15    | £15    | £574   | £589   |
| Frame and glass body   | £75    | £75    | £499   | £574   |
| Other small parts      | £100   | £100   | £399   | £499   |
| Distribution           | £50    | £50    | £349   | £399   |
| Packing                | £50    | £50    | £299   | £349   |
| Total                  | £1,100 | £1,100 | £299   | £299   |
| Profit                 | £0     | £0     | £299   | £299   |

| Components<br>200 Units                                           | Value<br>1 Unit | Cost<br>200 Units | Left<br>200 Units | Total<br>200 Units |
|-------------------------------------------------------------------|-----------------|-------------------|-------------------|--------------------|
|                                                                   |                 |                   |                   | £279,800           |
| Includes research, factories, staff salaries, marketing, software | £20,000         | £20,000           | £259,800          | £279,800           |
| Battery                                                           | £50             | £10,000           | £249,800          | £259,800           |
| Processor                                                         | £150            | £30,000           | £219,800          | £249,800           |
| Camera system                                                     | £180            | £36,000           | £183,800          | £219,800           |
| Face id sensors                                                   | £40             | £8,000            | £175,800          | £183,800           |
| Screen                                                            | £200            | £40,000           | £135,800          | £175,800           |
| Ram                                                               | £30             | £6,000            | £129,800          | £135,800           |
| Storage                                                           | £80             | £16,000           | £113,800          | £129,800           |
| Motherboard                                                       | £60             | £12,000           | £101,800          | £113,800           |
| Speaker and Microphone                                            | £20             | £4,000            | £97,800           | £101,800           |
| Charging Port type-C                                              | £15             | £3,000            | £94,800           | £97,800            |
| Frame and glass body                                              | £75             | £15,000           | £79,800           | £94,800            |
| Other small parts                                                 | £100            | £20,000           | £59,800           | £79,800            |
| Distribution                                                      | £50             | £10,000           | £49,800           | £59,800            |
| Packing                                                           | £50             | £10,000           | £39,800           | £49,800            |
| Total                                                             | £1,100          | £240,000          | £39,800           | £39,800            |
|                                                                   |                 |                   |                   |                    |



| Item                      | Amount    |
|---------------------------|-----------|
| Total revenue (200 units) | £279,800  |
| Total variable cost       | £220,000  |
| Fixed costs               | £20,000   |
| Total cost                | £240,000  |
| Profit                    | £39,800   |
| Breakeven point           | 67 units  |
| Margin of safety          | 133 units |

## Breakeven Analysis – iPhone 18 Pro Max

my company has carried out a breakeven analysis for its new product, the iPhone 18 Pro Max, to assess whether the product will be profitable and to determine the minimum number of units that must be sold to cover all costs.

### Assumptions

To complete the breakeven analysis, my company has made the following assumptions:

- The selling price of the iPhone 18 Pro Max is £1,399 per unit, which is competitive with other premium smartphones on the market.
- The variable cost per unit is £1,100, which includes the cost of components (£1,000), packaging (£50), and distribution (£50).
- Fixed costs are £20,000 per month, covering research and development, factories, staff salaries, marketing, and software.
- Expected monthly sales are 200 units, based on market research.
- The maximum production capacity is 600 units per month.

### **Variable Costs Calculation**

**Formula:**

Variable costs = Variable cost per unit × Number of units

**Calculation:**

$£1,100 \times 200 = £220,000$

Therefore, the total variable cost of producing 200 units is £220,000.

### **Total Costs Calculation**

**Formula:**

Total costs = Fixed costs + Variable costs

**Calculation:**

$£20,000 + £220,000 = £240,000$

The total cost of producing 200 units is £240,000.

### **Revenue Calculation**

**Formula:**

Revenue = Selling price × Sales volume

**Calculation:**

$200 \times £1,399 = £279,800$

The total revenue generated from selling 200 units is £279,800.

## Profit Calculation

Formula:

**Profit = Revenue – Total costs**

Calculation:

**£279,800 – £240,000 = £39,800**

**This shows that Apple would make a profit of £39,800 if 200 units are sold.**

## Breakeven Point Calculation

The breakeven point shows the number of units that must be sold for total revenue to equal total costs.

Formula:

Breakeven point (units) =

Fixed costs ÷ (Selling price – Variable cost)

Calculation:

£20,000 ÷ (£1,399 – £1,100)

£20,000 ÷ £299

= 66.89 units

As part units cannot be sold, the breakeven point is rounded up to 67 units.

## **Margin of Safety**

**The margin of safety shows how much sales can fall before the business reaches the breakeven point.**

**Formula:**

**Margin of safety = Actual sales – Breakeven sales**

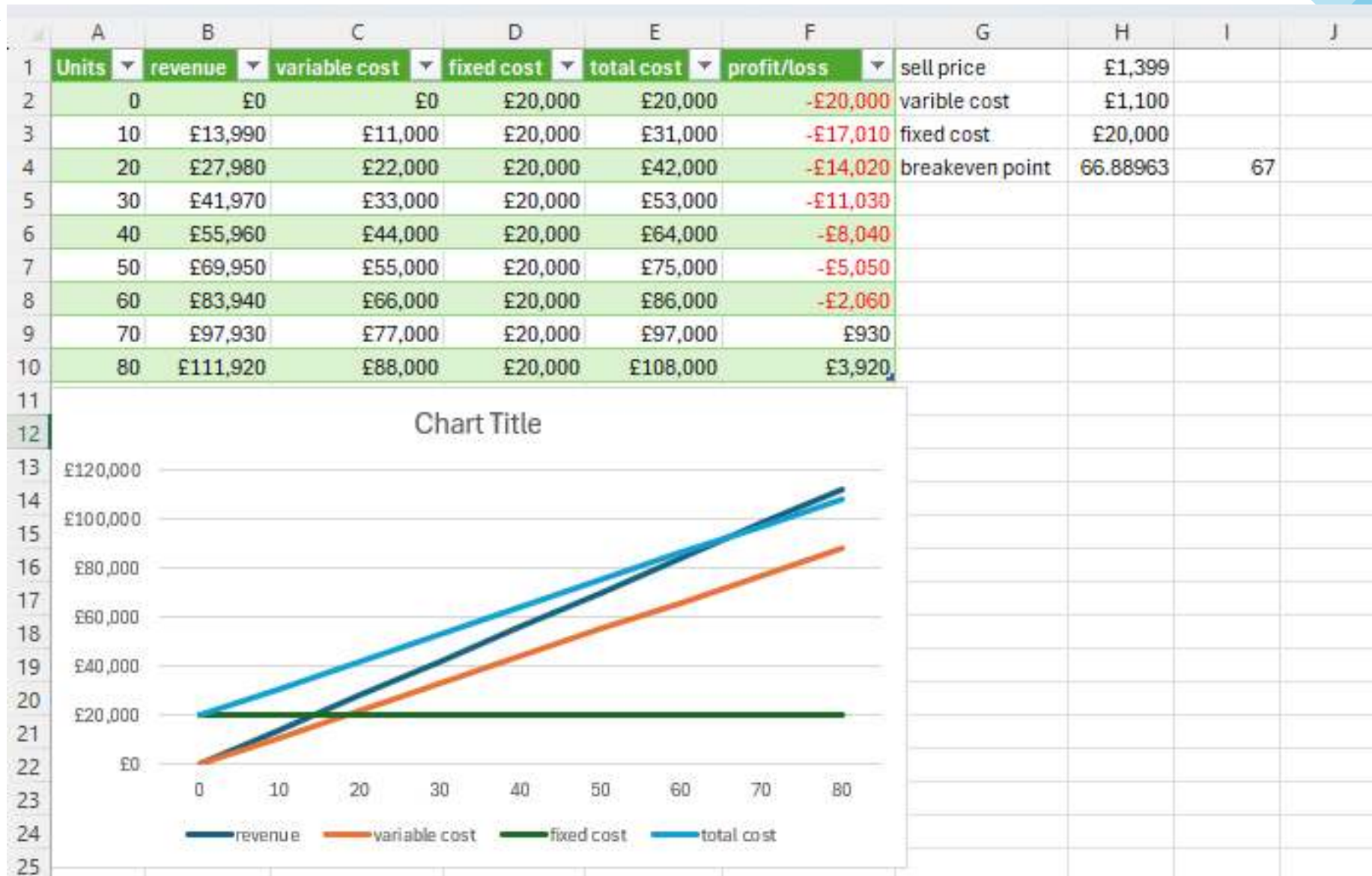
**Calculation:**

**200 – 67 = 133 units**

**This means sales could fall by 133 units before my company begins to make a loss.**

## **Review: Effect of Changing Revenue and Costs**

**My Company reviewed how changes to selling price revenue and costs affect the breakeven point, profit, and risk.**



## **Scenario A – Selling Price Drops to £1,299**

New contribution per unit:

$$£1,299 - £1,100 = £199$$

New breakeven:

$$£20,000 \div £199 = 100.50 \rightarrow 101 \text{ units}$$

Breakeven increases from 67  $\rightarrow$  101 units

Business becomes riskier because it must sell more units to break even.

| Components                  | Value/costs | Description                                                         |
|-----------------------------|-------------|---------------------------------------------------------------------|
| Selling price per unit      | £1,299      | Competitive price compared with other premium smartphones           |
| Variable cost per unit      | £1,100      | Includes components (£1,000) + packaging (£50) + distribution (£50) |
| Fixed costs per month       | £20,000     | Includes research, factories, staff salaries, marketing, software   |
| Expected monthly sales      | 200 units   | Market research survey                                              |
| Maximum production capacity | 600 Units   | Manufacturing capacity                                              |

## Calculations

### Variable costs

Formula:

$$\text{Total Variable costs} = \text{Variable cost per unit} \times \text{Number of units}$$

Example for 200 units

$$£1,100 \times 200 = £220,000$$

## Calculations

### Total costs

Formula:

$$\text{Total costs} = \text{Fixed costs} + \text{Variable costs}$$

Example for 200 units

$$£20,000 + £220,000 = £240,000$$

## Calculations

### Revenue

Example for 200 units

Formula:

$$\text{Revenue} = \text{Sales Volume} \times \text{Selling price}$$

$$200 \times £1,299 = £259,800$$

|                                                                                |                               |         |         |              |
|--------------------------------------------------------------------------------|-------------------------------|---------|---------|--------------|
| Calculations                                                                   |                               |         |         |              |
| Profit/loss                                                                    |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Profit/loss = Revenue – Total costs                                            |                               |         |         |              |
| Example for 200 units                                                          |                               |         |         |              |
| £259,800 – £240,000 = £19,800                                                  |                               |         |         |              |
| Calculations                                                                   |                               |         |         |              |
| Breakeven                                                                      |                               |         |         |              |
| Example for 200 units                                                          |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Breakeven point =                                                              | Fixed Costs                   |         |         |              |
|                                                                                | Selling Price – Variable cost |         |         |              |
|                                                                                |                               |         |         |              |
| £20,000                                                                        | £20,000                       | £20,000 | £20,000 |              |
| £1,299                                                                         | -£1,100                       | £199    | £199    | 100.50 units |
| Rounded up:                                                                    |                               |         |         |              |
| Breakeven point = 101                                                          |                               |         |         |              |
| Calculations                                                                   |                               |         |         |              |
| Margin of safety                                                               |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Margin of safety = Actual sales (predicted sales in this case)-Breakeven sales |                               |         |         |              |
| 200 - 101 = 99                                                                 |                               |         |         |              |

| Components                    | Value  | Cost   | Left   | Total  |
|-------------------------------|--------|--------|--------|--------|
|                               |        |        |        | £1,299 |
| <b>Battery</b>                | £50    | £50    | £1,249 | £1,299 |
| <b>Processor</b>              | £150   | £150   | £1,099 | £1,249 |
| <b>Camera system</b>          | £180   | £180   | £919   | £1,099 |
| <b>Face id sensors</b>        | £40    | £40    | £879   | £919   |
| <b>Screen</b>                 | £200   | £200   | £679   | £879   |
| <b>Ram</b>                    | £30    | £30    | £649   | £679   |
| <b>Storage</b>                | £80    | £80    | £569   | £649   |
| <b>Motherboard</b>            | £60    | £60    | £509   | £569   |
| <b>Speaker and Microphone</b> | £20    | £20    | £489   | £509   |
| <b>Charging Port type-C</b>   | £15    | £15    | £474   | £489   |
| <b>Frame and glass body</b>   | £75    | £75    | £399   | £474   |
| <b>Other small parts</b>      | £100   | £100   | £299   | £399   |
| <b>Distribution</b>           | £50    | £50    | £249   | £299   |
| <b>Packing</b>                | £50    | £50    | £199   | £249   |
| <b>Total</b>                  | £1,100 | £1,100 | £199   | £199   |
| <b>Profit</b>                 | £0     | £0     | £199   | £199   |

| Components                                                        | Value   | Cost      | Left      | Total     |
|-------------------------------------------------------------------|---------|-----------|-----------|-----------|
| 200 Units                                                         | 1 Unit  | 200 Units | 200 Units | 200 Units |
|                                                                   |         |           |           | £259,800  |
| Includes research, factories, staff salaries, marketing, software | £20,000 | £20,000   | £239,800  | £259,800  |
| Battery                                                           | £50     | £10,000   | £229,800  | £239,800  |
| Processor                                                         | £150    | £30,000   | £199,800  | £229,800  |
| Camera system                                                     | £180    | £36,000   | £163,800  | £199,800  |
| Face id sensors                                                   | £40     | £8,000    | £155,800  | £163,800  |
| Screen                                                            | £200    | £40,000   | £115,800  | £155,800  |
| Ram                                                               | £30     | £6,000    | £109,800  | £115,800  |
| Storage                                                           | £80     | £16,000   | £93,800   | £109,800  |
| Motherboard                                                       | £60     | £12,000   | £81,800   | £93,800   |
| Speaker and Microphone                                            | £20     | £4,000    | £77,800   | £81,800   |
| Charging Port type-C                                              | £15     | £3,000    | £74,800   | £77,800   |
| Frame and glass body                                              | £75     | £15,000   | £59,800   | £74,800   |
| Other small parts                                                 | £100    | £20,000   | £39,800   | £59,800   |
| Distribution                                                      | £50     | £10,000   | £29,800   | £39,800   |
| Packing                                                           | £50     | £10,000   | £19,800   | £29,800   |
| Total                                                             | £1,100  | £240,000  | £19,800   | £19,800   |
| Profit                                                            | £0      | £0        | £19,800   | £19,800   |

| Item                             | Amount    |
|----------------------------------|-----------|
| <b>Total revenue (200 units)</b> | £259,800  |
| <b>Total variable cost</b>       | £220,000  |
| <b>Fixed costs</b>               | £20,000   |
| <b>Total cost</b>                | £240,000  |
| <b>Profit</b>                    | £19,800   |
| <b>Breakeven point</b>           | 101 units |
| <b>Margin of safety</b>          | 99 units  |

## Break-even Analysis – iPhone 18 Pro Max

my company has carried out a break-even analysis for its new product, the iPhone 18 Pro Max, to assess whether the product will be profitable and to determine the minimum number of units that must be sold to cover all costs.

### Assumptions

To complete the break-even analysis, my company has made the following assumptions:

- The selling price of the iPhone 18 Pro Max is £1,299 per unit, which is competitive with other premium smartphones on the market.
- The variable cost per unit is £1,100, which includes the cost of components (£1,000), packaging (£50), and distribution (£50).
- Fixed costs are £20,000 per month, covering research and development, factories, staff salaries, marketing, and software.
- Expected monthly sales are 200 units, based on market research.
- The maximum production capacity is 600 units per month.

### **Variable Costs Calculation**

**Formula:**

Variable costs = Variable cost per unit × Number of units

**Calculation:**

$$£1,100 \times 200 = £220,000$$

Therefore, the total variable cost of producing 200 units is £220,000.

### **Total Costs Calculation**

**Formula:**

Total costs = Fixed costs + Variable costs

**Calculation:**

$$£20,000 + £220,000 = £240,000$$

The total cost of producing 200 units is £240,000.

### **Revenue Calculation**

**Formula:**

Revenue = Selling price × Sales volume

**Calculation:**

$$200 \times £1,299 = £259,800$$

The total revenue generated from selling 200 units is £259,800.

## PROFIT CALCULATION

FORMULA:

PROFIT = REVENUE – TOTAL COSTS

CALCULATION:

£259,800 – £240,000 = £19,800

THIS SHOWS THAT MY COMPANY WOULD MAKE A PROFIT OF £19,800 IF 200 UNITS ARE SOLD.

## Breakeven Point Calculation

The breakeven point shows the number of units that must be sold for total revenue to equal total costs.

Formula:

Breakeven point (units) =

Fixed costs ÷ (Selling price – Variable cost)

Calculation:

£20,000 ÷ (£1,299 – £1,100)

£20,000 ÷ £199

= 100.50 units

As part units cannot be sold, the breakeven point is rounded up to 101 units.

## **Margin of Safety**

**The margin of safety shows how much sales can fall before the business reaches the breakeven point.**

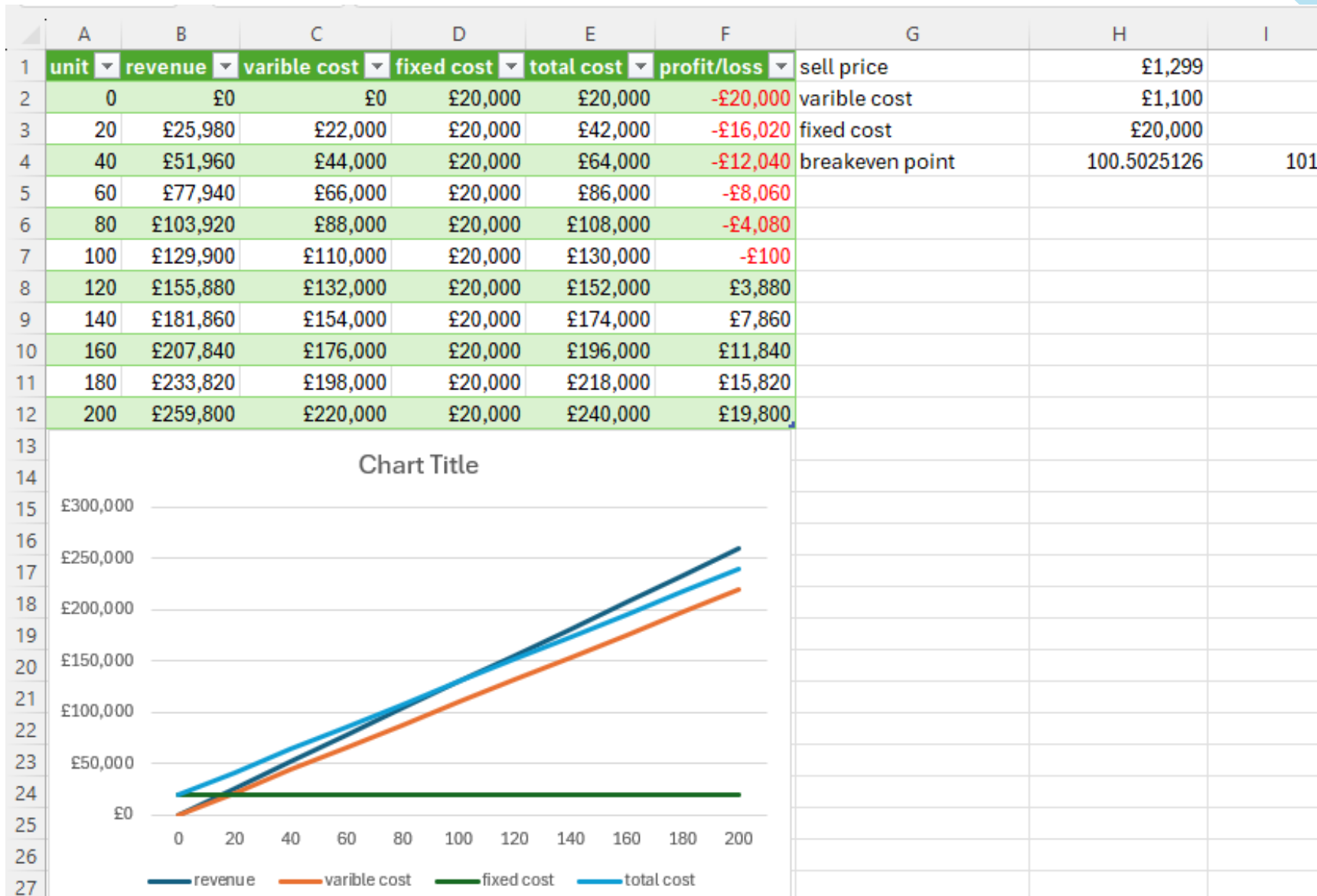
**Formula:**

**Margin of safety = Actual sales – Breakeven sales**

**Calculation:**

**200 – 101 = 99 units**

**This means sales could fall by 99 units before my company begins to make a loss.**



## **Scenario B – Variable Costs Increase to £1,150**

**New contribution per unit:**

$$\text{£1,399} - \text{£1,150} = \text{£249}$$

**New breakeven:**

$$\text{£20,000} \div \text{£249} = 80.32 \rightarrow 81 \text{ units}$$

**Breakeven increases from 67 → 81 units**

**Profit becomes smaller.**

| Components                  | Value/costs | Description                                                                     |
|-----------------------------|-------------|---------------------------------------------------------------------------------|
| Selling price per unit      | £1,399      | Competitive price compared with other premium smartphones                       |
| Variable cost per unit      | £1,150      | Includes components (£1,000) + packaging (£50) + distribution (£50) + Tax (£50) |
| Fixed costs per month       | £20,000     | Includes research, factories, staff salaries, marketing, software               |
| Expected monthly sales      | 200 units   | Market research survey                                                          |
| Maximum production capacity | 600 Units   | Manufacturing capacity                                                          |

## Calculations

### Variable costs

#### Formula:

$$\text{Total Variable costs} = \text{Variable cost per unit} \times \text{Number of units}$$

#### Example for 200 units

$$£1,150 \times 200 = £230,000$$

## Calculations

### Total costs

#### Formula:

$$\text{Total costs} = \text{Fixed costs} + \text{Variable costs}$$

#### Example for 200 units

$$£20,000 + £230,000 = £250,000$$

## Calculations

### Revenue

#### Example for 200 units

#### Formula:

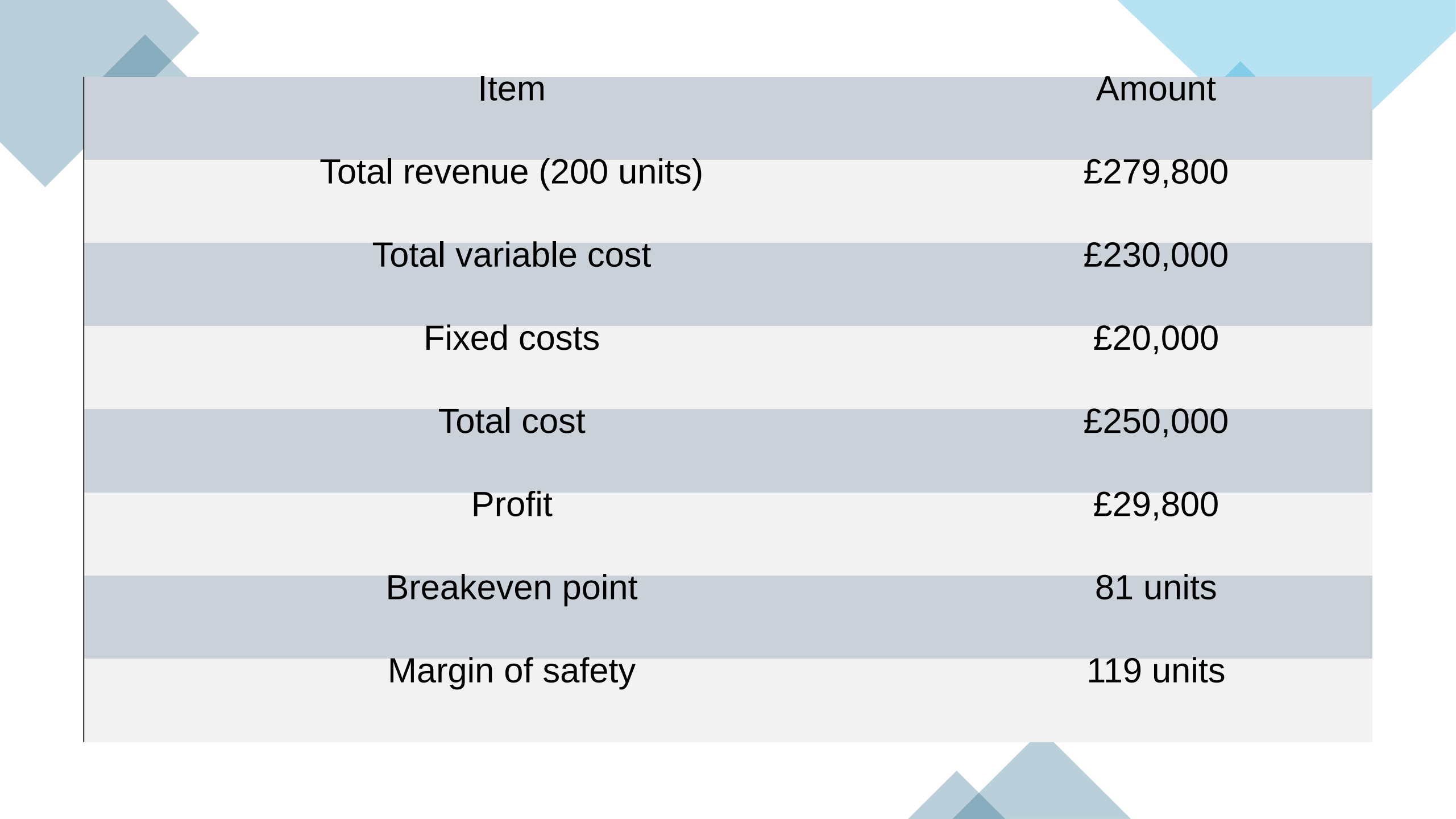
$$\text{Revenue} = \text{Sales Volume} \times \text{Selling price}$$

$$200 \times £1,399 = £279,800$$

|                                                                                |                               |         |         |             |
|--------------------------------------------------------------------------------|-------------------------------|---------|---------|-------------|
| Calculations                                                                   |                               |         |         |             |
| Profit/loss                                                                    |                               |         |         |             |
| Formula:                                                                       |                               |         |         |             |
| Profit/loss = Revenue – Total costs                                            |                               |         |         |             |
| Example for 200 units                                                          |                               |         |         |             |
| £279,800 – £250,000 = £29,800                                                  |                               |         |         |             |
| Calculations                                                                   |                               |         |         |             |
| Breakeven                                                                      |                               |         |         |             |
| Example for 200 units                                                          |                               |         |         |             |
| Formula:                                                                       |                               |         |         |             |
| Breakeven point =                                                              | Fixed Costs                   |         |         |             |
|                                                                                | Selling Price – Variable cost |         |         |             |
| £20,000                                                                        | £20,000                       | £20,000 | £20,000 | 80.32 units |
| £1,399                                                                         | -£1,150                       | £249    | £249    |             |
| Rounded up:                                                                    |                               |         |         |             |
| Breakeven point = 81                                                           |                               |         |         |             |
| Calculations                                                                   |                               |         |         |             |
| Margin of safety                                                               |                               |         |         |             |
| Formula:                                                                       |                               |         |         |             |
| Margin of safety = Actual sales (predicted sales in this case)-Breakeven sales |                               |         |         |             |
| 200 - 81 = 119                                                                 |                               |         |         |             |

| Components             | Value  | Cost   | Left   | Total  |
|------------------------|--------|--------|--------|--------|
|                        |        |        |        | £1,399 |
| Battery                | £50    | £50    | £1,349 | £1,399 |
| Processor              | £150   | £150   | £1,199 | £1,349 |
| Camera system          | £180   | £180   | £1,019 | £1,199 |
| Face id sensors        | £40    | £40    | £979   | £1,019 |
| Screen                 | £200   | £200   | £779   | £979   |
| Ram                    | £30    | £30    | £749   | £779   |
| Storage                | £80    | £80    | £669   | £749   |
| Motherboard            | £60    | £60    | £609   | £669   |
| Speaker and Microphone | £20    | £20    | £589   | £609   |
| Charging Port type-C   | £15    | £15    | £574   | £589   |
| Frame and glass body   | £75    | £75    | £499   | £574   |
| Other small parts      | £100   | £100   | £399   | £499   |
| Distribution           | £50    | £50    | £349   | £399   |
| Packing                | £50    | £50    | £299   | £349   |
| Tax                    | £50    | £50    | £249   | £299   |
| Total                  | £1,150 | £1,150 | £249   | £249   |
| Profit                 | £0     | £0     | £249   | £249   |

| Components                                                        | Value                  | Cost    | Left      | Total     |
|-------------------------------------------------------------------|------------------------|---------|-----------|-----------|
|                                                                   | 200 Units              | 1 Unit  | 200 Units | 200 Units |
| Includes research, factories, staff salaries, marketing, software |                        |         |           | £279,800  |
|                                                                   | £20,000                | £20,000 | £259,800  | £279,800  |
|                                                                   | Battery                | £50     | £10,000   | £249,800  |
|                                                                   | Processor              | £150    | £30,000   | £219,800  |
|                                                                   | Camera system          | £180    | £36,000   | £183,800  |
|                                                                   | Face id sensors        | £40     | £8,000    | £175,800  |
|                                                                   | Screen                 | £200    | £40,000   | £175,800  |
|                                                                   | Ram                    | £30     | £6,000    | £129,800  |
|                                                                   | Storage                | £80     | £16,000   | £113,800  |
|                                                                   | Motherboard            | £60     | £12,000   | £101,800  |
|                                                                   | Speaker and Microphone | £20     | £4,000    | £97,800   |
|                                                                   | Charging Port type-C   | £15     | £3,000    | £94,800   |
|                                                                   | Frame and glass body   | £75     | £15,000   | £79,800   |
|                                                                   | Other small parts      | £100    | £20,000   | £59,800   |
|                                                                   | Distribution           | £50     | £10,000   | £49,800   |
|                                                                   | Packing                | £50     | £10,000   | £39,800   |
|                                                                   | Tax                    | £50     | £10,000   | £29,800   |
|                                                                   | Total                  | £1,150  | £240,000  | £29,800   |
|                                                                   | Profit                 | £0      | £0        | £29,800   |



| Item                      | Amount    |
|---------------------------|-----------|
| Total revenue (200 units) | £279,800  |
| Total variable cost       | £230,000  |
| Fixed costs               | £20,000   |
| Total cost                | £250,000  |
| Profit                    | £29,800   |
| Breakeven point           | 81 units  |
| Margin of safety          | 119 units |

## **Breakeven Analysis – iPhone 18 Pro Max**

**my company has carried out a breakeven analysis for its new product, the iPhone 18 Pro Max, to assess whether the product will be profitable and to determine the minimum number of units that must be sold to cover all costs.**

### **Assumptions**

**To complete the breakeven analysis, my company has made the following assumptions:**

- The selling price of the iPhone 18 Pro Max is £1,399 per unit, which is competitive with other premium smartphones on the market.**
- The variable cost per unit is £1,150, which includes the cost of components (£1,000), packaging (£50), distribution (£50) and tax (£50).**
- Fixed costs are £20,000 per month, covering research and development, factories, staff salaries, marketing, and software.**
- Expected monthly sales are 200 units, based on market research.**
- The maximum production capacity is 600 units per month.**

---

### **Variable Costs Calculation**

**Formula:**

**Variable costs = Variable cost per unit × Number of units**

**Calculation:**

**£1,150 × 200 = £230,000**

**Therefore, the total variable cost of producing 200 units is £230,000.**

### **Total Costs Calculation**

**Formula:**

**Total costs = Fixed costs + Variable costs**

**Calculation:**

**£20,000 + £230,000 = £250,000**

**The total cost of producing 200 units is £250,000.**

### **Revenue Calculation**

**Formula:**

**Revenue = Selling price × Sales volume**

**Calculation:**

**200 × £1,399 = £279,800**

**The total revenue generated from selling 200 units is £279,800.**

---

### Profit Calculation

Formula:

$$\text{Profit} = \text{Revenue} - \text{Total costs}$$

Calculation:

$$£279,800 - £250,000 = £29,800$$

This shows that my company would make a profit of £29,800 if 200 units are sold.

### Breakeven Point Calculation

The breakeven point shows the number of units that must be sold for total revenue to equal total costs.

Formula:

$$\text{Breakeven point (units)} = \frac{\text{Fixed costs}}{\text{Selling price} - \text{Variable cost}}$$

Calculation:

$$£20,000 \div (£1,399 - £1,150)$$

$$£20,000 \div £249$$

$$= 80.32 \text{ units}$$

As part units cannot be sold, the breakeven point is rounded up to 81 units.

## Margin of Safety

The margin of safety shows how much sales can fall before the business reaches the breakeven point.

Formula:

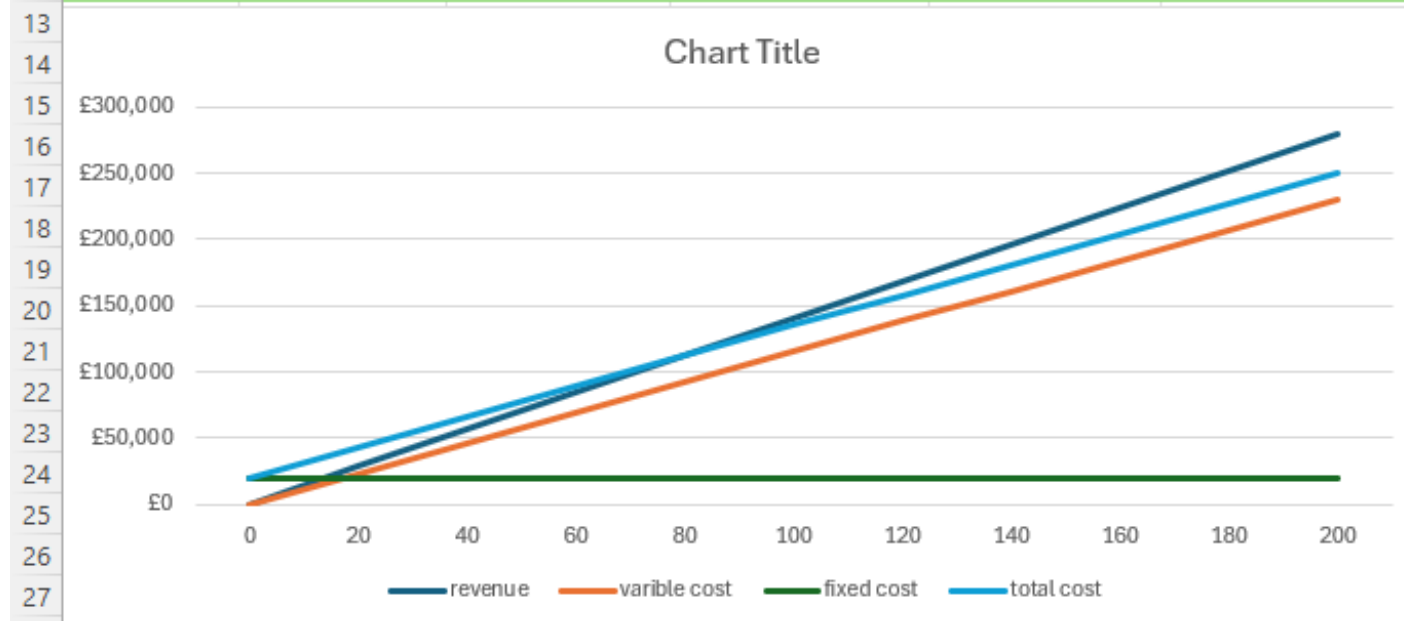
Margin of safety = Actual sales – Breakeven sales

Calculation:

$200 - 81 = 119$  units

This means sales could fall by 119 units before my company begins to make a loss.

|    | A    | B        | C             | D          | E          | F           | G               | H           | I  |
|----|------|----------|---------------|------------|------------|-------------|-----------------|-------------|----|
| 1  | unit | revenue  | variable cost | fixed cost | total cost | profit/loss | sell price      | £1,399      |    |
| 2  | 0    | £0       | £0            | £20,000    | £20,000    | £-20,000    | variable cost   | £1,150      |    |
| 3  | 20   | £27,980  | £23,000       | £20,000    | £43,000    | £-15,020    | fixed cost      | £20,000     |    |
| 4  | 40   | £55,960  | £46,000       | £20,000    | £66,000    | £-10,040    | breakeven point | 80.32128514 | 81 |
| 5  | 60   | £83,940  | £69,000       | £20,000    | £89,000    | £-5,060     |                 |             |    |
| 6  | 80   | £111,920 | £92,000       | £20,000    | £112,000   | £-80        |                 |             |    |
| 7  | 100  | £139,900 | £115,000      | £20,000    | £135,000   | £4,900      |                 |             |    |
| 8  | 120  | £167,880 | £138,000      | £20,000    | £158,000   | £9,880      |                 |             |    |
| 9  | 140  | £195,860 | £161,000      | £20,000    | £181,000   | £14,860     |                 |             |    |
| 10 | 160  | £223,840 | £184,000      | £20,000    | £204,000   | £19,840     |                 |             |    |
| 11 | 180  | £251,820 | £207,000      | £20,000    | £227,000   | £24,820     |                 |             |    |
| 12 | 200  | £279,800 | £230,000      | £20,000    | £250,000   | £29,800     |                 |             |    |



## **Scenario C – Fixed Costs Increase to £30,000**

**Breakeven:**

$$\text{£30,000} \div \text{£299} = 100.33 \rightarrow 101 \text{ units}$$

**Breakeven increases from 67 → 101 units**

**Business must sell more units to cover costs.**

| Components                         | Value/costs | Description                                                         |
|------------------------------------|-------------|---------------------------------------------------------------------|
| <b>Selling price per unit</b>      | £1,399      | Competitive price compared with other premium smartphones           |
| <b>Variable cost per unit</b>      | £1,100      | Includes components (£1,000) + packaging (£50) + distribution (£50) |
| <b>Fixed costs per month</b>       | £30,000     | Includes research, factories, staff salaries, marketing, software   |
| <b>Expected monthly sales</b>      | 200 units   | Market research survey                                              |
| <b>Maximum production capacity</b> | 600 Units   | Manufacturing capacity                                              |

## Calculations

### Variable costs

Formula:

$$\text{Total Variable costs} = \text{Variable cost per unit} \times \text{Number of units}$$

Example for 200 units

$$£1,100 \times 200 = £220,000$$

## Calculations

### Total costs

Formula:

$$\text{Total costs} = \text{Fixed costs} + \text{Variable costs}$$

Example for 200 units

$$£30,000 + £220,000 = £250,000$$

## Calculations

### Revenue

Example for 200 units

Formula:

$$\text{Revenue} = \text{Sales Volume} \times \text{Selling price}$$

$$200 \times £1,399 = £279,800$$

|                                                                                |                               |         |         |              |
|--------------------------------------------------------------------------------|-------------------------------|---------|---------|--------------|
| Calculations                                                                   |                               |         |         |              |
| Profit/loss                                                                    |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Profit/loss = Revenue – Total costs                                            |                               |         |         |              |
| Example for 200 units                                                          |                               |         |         |              |
| £279,800 – £250,000 = £29,800                                                  |                               |         |         |              |
| Calculations                                                                   |                               |         |         |              |
| Breakeven                                                                      |                               |         |         |              |
| Example for 200 units                                                          |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Breakeven point =                                                              | Fixed Costs                   |         |         |              |
|                                                                                | Selling Price – Variable cost |         |         |              |
| £30,000                                                                        | £30,000                       | £30,000 | £30,000 | 100.33 units |
| £1,399                                                                         | -£1,100                       | £299    | £299    |              |
| Rounded up:                                                                    |                               |         |         |              |
| Breakeven point = 101                                                          |                               |         |         |              |
| Calculations                                                                   |                               |         |         |              |
| Margin of safety                                                               |                               |         |         |              |
| Formula:                                                                       |                               |         |         |              |
| Margin of safety = Actual sales (predicted sales in this case)-Breakeven sales |                               |         |         |              |
| 200 - 101 = 99                                                                 |                               |         |         |              |

| COMPONENTS             | VALUE  | COST   | LEFT   | TOTAL  |
|------------------------|--------|--------|--------|--------|
|                        |        |        |        | £1,399 |
| Battery                | £50    | £50    | £1,349 | £1,399 |
| Processor              | £150   | £150   | £1,199 | £1,349 |
| Camera system          | £180   | £180   | £1,019 | £1,199 |
| Face id sensors        | £40    | £40    | £979   | £1,019 |
| Screen                 | £200   | £200   | £779   | £979   |
| Ram                    | £30    | £30    | £749   | £779   |
| Storage                | £80    | £80    | £669   | £749   |
| Motherboard            | £60    | £60    | £609   | £669   |
| Speaker and Microphone | £20    | £20    | £589   | £609   |
| Charging Port type-C   | £15    | £15    | £574   | £589   |
| Frame and glass body   | £75    | £75    | £499   | £574   |
| Other small parts      | £100   | £100   | £399   | £499   |
| Distribution           | £50    | £50    | £349   | £399   |
| Packing                | £50    | £50    | £299   | £349   |
| Total                  | £1,100 | £1,100 | £299   | £299   |
| Profit                 | £0     | £0     | £299   | £299   |

| Components                                                               | Value     | Cost      | Left      | Total     |
|--------------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| 200 Units                                                                | 200 Units | 200 Units | 200 Units | 200 Units |
|                                                                          |           |           |           | £279,800  |
| <b>Includes research, factories, staff salaries, marketing, software</b> | £30,000   | £30,000   | £249,800  | £279,800  |
| <b>Battery</b>                                                           | £50       | £10,000   | £239,800  | £249,800  |
| <b>Processor</b>                                                         | £150      | £30,000   | £209,800  | £239,800  |
| <b>Camera system</b>                                                     | £180      | £36,000   | £173,800  | £209,800  |
| <b>Face id sensors</b>                                                   | £40       | £8,000    | £165,800  | £173,800  |
| <b>Screen</b>                                                            | £200      | £40,000   | £125,800  | £165,800  |
| <b>Ram</b>                                                               | £30       | £6,000    | £119,800  | £125,800  |
| <b>Storage</b>                                                           | £80       | £16,000   | £103,800  | £119,800  |
| <b>Motherboard</b>                                                       | £60       | £12,000   | £91,800   | £103,800  |
| <b>Speaker and Microphone</b>                                            | £20       | £4,000    | £87,800   | £91,800   |
| <b>Charging Port type-C</b>                                              | £15       | £3,000    | £84,800   | £87,800   |
| <b>Frame and glass body</b>                                              | £75       | £15,000   | £69,800   | £84,800   |
| <b>Other small parts</b>                                                 | £100      | £20,000   | £49,800   | £69,800   |
| <b>Distribution</b>                                                      | £50       | £10,000   | £39,800   | £49,800   |
| <b>Packing</b>                                                           | £50       | £10,000   | £29,800   | £39,800   |
| <b>Total</b>                                                             | £1,100    | £240,000  | £29,800   | £29,800   |
| <b>Profit</b>                                                            | £0        | £0        | £29,800   | £29,800   |

| ITEM                      | AMOUNT    |
|---------------------------|-----------|
| Total revenue (200 units) | £279,800  |
| Total variable cost       | £220,000  |
| Fixed costs               | £30,000   |
| Total cost                | £250,000  |
| Profit                    | £29,800   |
| Breakeven point           | 101 units |
| Margin of safety          | 133 units |

## Breakeven Analysis – iPhone 18 Pro Max

my company has carried out a breakeven analysis for its new product, the iPhone 18 Pro Max, to assess whether the product will be profitable and to determine the minimum number of units that must be sold to cover all costs.

### Assumptions

To complete the breakeven analysis, my company has made the following assumptions:

- The selling price of the iPhone 18 Pro Max is £1,399 per unit, which is competitive with other premium smartphones on the market.
- The variable cost per unit is £1,100, which includes the cost of components (£1,000), packaging (£50), and distribution (£50).
- Fixed costs are £30,000 per month, covering research and development, factories, staff salaries, marketing, and software.
- Expected monthly sales are 200 units, based on market research.
- The maximum production capacity is 600 units per month.

#### Variable Costs Calculation

Formula:

Variable costs = Variable cost per unit × Number of units

Calculation:

$$£1,100 \times 200 = £220,000$$

Therefore, the total variable cost of producing 200 units is £220,000.

#### Total Costs Calculation

Formula:

Total costs = Fixed costs + Variable costs

Calculation:

$$£30,000 + £220,000 = £250,000$$

The total cost of producing 200 units is £250,000.

#### Revenue Calculation

Formula:

Revenue = Selling price × Sales volume

Calculation:

$$200 \times £1,399 = £279,800$$

The total revenue generated from selling 200 units is £279,800.

#### Profit Calculation

Formula:

Profit = Revenue – Total costs

Calculation:

$$£279,800 - £250,000 = £29,800$$

This shows that my company would make a profit of £29,800 if 200 units are sold.

## **BREAKEVEN POINT CALCULATION**

**THE BREAKEVEN POINT SHOWS THE NUMBER OF UNITS THAT MUST BE SOLD FOR TOTAL REVENUE TO EQUAL TOTAL COSTS.**

**FORMULA:**

$$\text{BREAKEVEN POINT (UNITS)} = \text{FIXED COSTS} \div (\text{SELLING PRICE} - \text{VARIABLE COST})$$

**CALCULATION:**

$$£30,000 \div (£1,399 - £1,100)$$

$$£30,000 \div £299$$

$$= 100.33 \text{ UNITS}$$

**AS PART UNITS CANNOT BE SOLD, THE BREAKEVEN POINT IS ROUNDED UP TO 101 UNITS.**

## **MARGIN OF SAFETY**

**THE MARGIN OF SAFETY SHOWS HOW MUCH SALES CAN FALL BEFORE THE BUSINESS REACHES THE BREAK-EVEN POINT.**

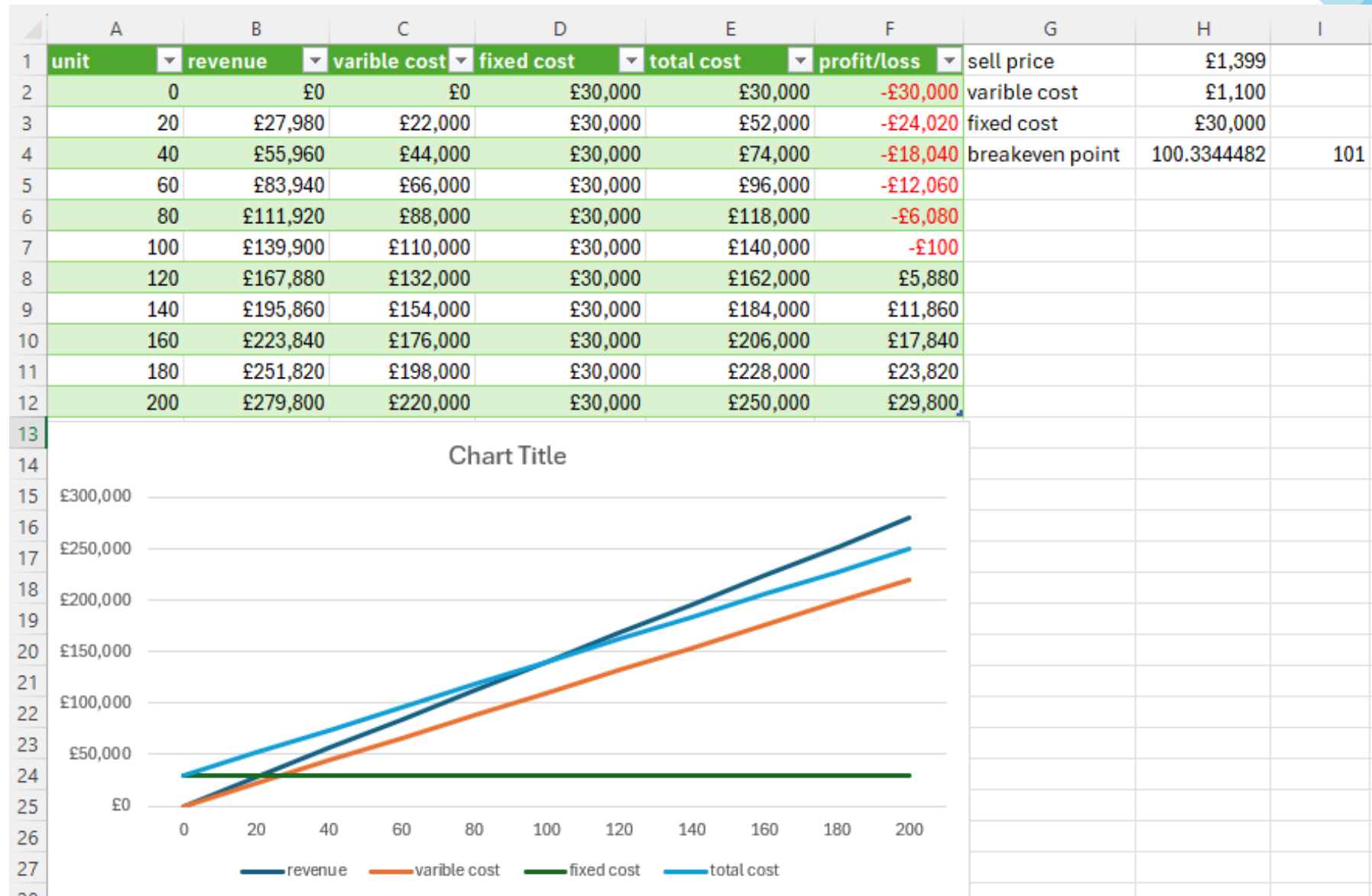
**FORMULA:**

**MARGIN OF SAFETY = ACTUAL SALES – BREAK-EVEN SALES**

**CALCULATION:**

**200 – 101 = 99 UNITS**

**THIS MEANS SALES COULD FALL BY 99 UNITS BEFORE MY COMPANY BEGINS TO MAKE A LOSS.**



## Pricing Strategy

- Shows that lower price increases breakeven
- Helps decide if discounts are safe

## Cost Control

- Shows if variable or fixed costs are too high
- Helps choose cheaper suppliers

## Sales Targets

- Helps set a minimum target: 67 units per month

## Risk Assessment

- Margin of safety is 133 units, so risk is low
- If sales fall below 67 units, my company will make a loss

## **Planning and Forecasting**

- **Helps plan production levels and monthly budgets**

## **Investor Confidence**

- **Shows the business understands costs and profit clearly**

## **Conclusion**

**This breakeven analysis shows My company must sell at least 67 units of iPhone 18 Pro Max each month to avoid losses. With expected sales of 200 units, my company is likely to make £39,800 profit per month. The margin of safety is 133 units, which shows low financial risk and good profit potential.**

**Evaluate: How Breakeven Analysis Informs Business Decisions** Breakeven analysis is useful because it supports decision-making by showing the relationship between price, costs, and sales volume. However, it has limitations, so it should be used alongside other data.

## **HOW IT INFORMS DECISIONS**

### **1) Pricing decisions**

**Breakeven analysis shows how price changes affect contribution and risk. For example, when price falls from £1,399 to £1,299, the breakeven point increases from 67 to 101 units, which reduces profit and increases risk. This helps My Company decide whether discounts are financially safe.**

### **2) Cost control and supplier decisions**

**By separating costs into variable and fixed, the business can identify which cost increases harm profitability most. Scenario B shows that a rise in variable costs increases breakeven and reduces profit, so My Company may negotiate supplier contracts or redesign components to lower unit costs.**

### **3) SALES TARGETS AND PERFORMANCE MONITORING**

**THE BREAK-EVEN POINT PROVIDES A CLEAR MINIMUM TARGET. MY COMPANY KNOWS IT MUST SELL AT LEAST 67 UNITS IN THE BASE CASE. THIS CAN BE USED TO SET REALISTIC MONTHLY TARGETS AND TRACK PERFORMANCE.**

### **4) Risk assessment and planning**

**Margin of safety helps measure risk. In the base case the margin of safety is 133 units, showing low risk. In Scenario A/C it falls to 99 units, showing higher risk. This supports decisions such as improving marketing, increasing capacity utilisation, or avoiding unnecessary fixed costs.**

### **5) Investment and budgeting decisions**

**Break-even analysis helps plan budgets and justify spending. If fixed costs increase Scenario C, break-even rises sharply. This helps My Company decide whether higher marketing or factory costs are worth it.**

## LIMITATIONS BALANCED EVALUATION

- IT ASSUMES SELLING PRICE AND COSTS STAY CONSTANT, BUT COSTS E.G., COMPONENTS AND TAX MAY CHANGE.
- IT ASSUMES ALL UNITS PRODUCED ARE SOLD, BUT DEMAND CAN FLUCTUATE.
- IT DOES NOT CONSIDER COMPETITOR ACTIONS, ECONOMIC CONDITIONS, OR SUDDEN CHANGES IN TECHNOLOGY.

### Overall judgement

Overall, breakeven analysis is an effective planning tool because it shows the minimum sales required to avoid losses and allows My Company to test “what-if” scenarios. However, My Company should combine breakeven analysis with market research, competitor analysis, and cash-flow forecasting to make the most accurate decisions.

# Reference

- I copy my all calculation and paste on ChatGPT, and it tell me my mistake and then I write "Rewrite it in simpler GCSE / BTEC language and Turn this into a perfect Grade A / Distinction version" <https://chatgpt.com/c/6985d389-3aac-8392-a25d-8bd181f64dc6> (Accessed:3 February 2026).

Rewrite it in  
simpler GCSE /  
BTEC language  
and Turn this into  
a perfect Grade  
A / Distinction  
version

#### **Breakeven Analysis – iPhone 18 Pro Max**

My company has used breakeven analysis to assess the financial viability of producing and selling the iPhone 18 Pro Max. Breakeven analysis helps a business identify the level of output at which total revenue equals total costs, meaning the business makes neither a profit nor a loss.

#### **Cost and Revenue Assumptions**

My company assumes that the selling price of the iPhone 18 Pro Max will be £1,399 per unit, which reflects its premium brand positioning and is competitive within the smartphone market. The variable cost per unit is £1,100, including components, packaging, and distribution. My company also incurs fixed costs of £20,000 per month, which include research and development, factory costs, staff salaries, marketing, and software. Market research suggests expected monthly sales of 200 units, while maximum production capacity is 600 units.

#### **Calculations and Analysis**

The total variable cost for producing 200 units is calculated by multiplying the variable cost per unit by the number of units:

$$£1,100 \times 200 = £220,000$$

Total costs are then calculated by adding fixed costs to variable costs:

$$£220,000 + £20,000 = £240,000$$

Revenue is calculated by multiplying the selling price by the sales volume:

$$200 \times £1,399 = £279,800$$

Profit is calculated by subtracting total costs from total revenue:

$$£279,800 - £240,000 = £39,800$$

This shows that My company would make a profit of £39,800 at a sales level of 200 units, indicating that the product is financially viable.

#### **Breakeven Point**

The breakeven point is calculated using the formula:

$$\text{Fixed costs} \div (\text{Selling price} - \text{Variable cost})$$

$$£20,000 \div (£1,399 - £1,100) = £20,000 \div £299 = 66.89 \text{ units}$$

As My company cannot sell part of a unit, the breakeven point is rounded up to 67 units. This means my company must sell at least 67 iPhone 18 Pro Max units to cover all costs.

#### **Margin of Safety**

The margin of safety shows how much sales can fall before the business begins to make a loss. It is calculated by subtracting breakeven sales from expected sales.

$$200 - 67 = 133 \text{ units}$$

A margin of safety of 133 units indicates a low level of financial risk, as sales would have to fall significantly before My company makes a loss.

#### **Evaluation**

Breakeven analysis is useful for my company because it clearly shows the minimum level of sales required to avoid losses and helps management make informed decisions about pricing, production levels, and cost control. The low breakeven point compared to expected sales suggests that the iPhone 18 Pro Max is likely to be profitable and that My company has a strong competitive position.

However, breakeven analysis has limitations. It assumes that costs and selling prices remain constant, which may not be realistic due to changes in component prices, inflation, or competitive pressure. It also assumes that all units produced are sold, ignoring possible fluctuations in demand. Additionally, breakeven analysis does not consider external factors such as economic conditions or technological changes.

Overall, despite these limitations, breakeven analysis is an effective planning tool for My company. The large margin of safety and expected profit indicate that launching the iPhone 18 Pro Max would be a financially sound decision.

# Reference

- "exam answer version" <https://chatgpt.com/c/6985d389-3aac-8392-a25d-8bd181f64dc6> (Accessed: 3 February 2026)

# exam- answer version

## Break-even Analysis – Apple iPhone 18 Pro Max

Apple has carried out a breakeven analysis for its new product, the iPhone 18 Pro Max, to assess whether the product will be profitable and to determine the minimum number of units that must be sold to cover all costs.

### Assumptions

To complete the breakeven analysis, Apple has made the following assumptions:

- The selling price of the iPhone 18 Pro Max is £1,399 per unit, which is competitive with other premium smartphones on the market.
- The variable cost per unit is £1,100, which includes the cost of components (£1,000), packaging (£50), and distribution (£50).
- Fixed costs are £20,000 per month, covering research and development, factories, staff salaries, marketing, and software.
- Expected monthly sales are 200 units, based on market research.
- The maximum production capacity is 600 units per month.

### Variable Costs Calculation

#### Formula:

Variable costs = Variable cost per unit × Number of units

#### Calculation:

$£1,100 \times 200 = £220,000$

Therefore, the total variable cost of producing 200 units is £220,000.

### Total Costs Calculation

#### Formula:

Total costs = Fixed costs + Variable costs

#### Calculation:

$£20,000 + £220,000 = £240,000$

The total cost of producing 200 units is £240,000.

### Revenue Calculation

#### Formula:

Revenue = Selling price × Sales volume

#### Calculation:

$200 \times £1,399 = £279,800$

The total revenue generated from selling 200 units is £279,800.

### Profit Calculation

#### Formula:

Profit = Revenue – Total costs

#### Calculation:

$£279,800 - £240,000 = £39,800$

This shows that Apple would make a profit of £39,800 if 200 units are sold.

### Breakeven Point Calculation

The breakeven point shows the number of units that must be sold for total revenue to equal total costs.

#### Formula:

Breakeven point (units) =

Fixed costs ÷ (Selling price – Variable cost)

#### Calculation:

$£20,000 \div (£1,399 - £1,100)$

$£20,000 \div £299$

= 66.89 units

As part units cannot be sold, the breakeven point is rounded up to 67 units.

### Margin of Safety

The margin of safety shows how much sales can fall before the business reaches the breakeven point.

#### Formula:

Margin of safety = Actual sales – Breakeven sales

#### Calculation:

$200 - 67 = 133$  units

This means sales could fall by 133 units before Apple begins to make a loss.

### Conclusion

In conclusion, Apple's breakeven analysis shows that the iPhone 18 Pro Max is a profitable product. The breakeven point of 67 units is significantly lower than the expected sales of 200 units, giving a large margin of safety. This indicates that the product has a low financial risk and strong potential for profitability.

# My mistakes fix by ChatGPT and Deepseek

## ✓ Mistake 2: Scenario A rounding sentence is wrong (BIG)

In Scenario A you correctly calculated breakeven = 101, but later you wrote:

### ✗ Your text (Scenario A)

"As part units cannot be sold, the breakeven point is rounded up to 67 units."

### ✓ Fix

"As part units cannot be sold, the breakeven point is rounded up to 101 units."

Everything else in Scenario A (profit £19,800 and margin of safety 99) is correct ✓

### ✗ Your table row (Scenario B – wrong)

Total £1,100 £240,000 £29,800 £29,800

### ✓ Fix that row (Scenario B – correct)

Total £1,150 £250,000 £29,800 £29,800

Also the "Total cost" figure must match £250,000, not £240,000.