Note: Higher level questions are marked with an asterisk*

3. Warty Ltd

Warty Ltd, a mobile phone manufacturer, has the budget set out below for its one product for the coming year:

<table>
<thead>
<tr>
<th></th>
<th>£'000</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue (20,000 units)</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>Manufacturing costs – variable</td>
<td>1,400</td>
<td></td>
</tr>
<tr>
<td>- fixed</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td>Other production costs – variable</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>- fixed</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,600</td>
</tr>
</tbody>
</table>

Budgeted profit 400

REQUICKED:

a) What is the selling price of each unit?

b) What is the variable cost of each unit?

c) What is Warty’s contribution per unit?

d) What is Warty’s break-even point in units

e) What is Warty’s margin of safety as a %?

f) How many mobile phones would Warty Ltd need to sell to achieve a target profit of £1,000,000?
4. Harvey

Harvey, a friend of yours, has come to you for financial advice. He is about to set up in business, manufacturing and selling oak computer desks. He provides you with the following information:

**Per unit**
- Material costs £70
- Labour costs £80
- Variable overheads £30

**Per annum**
- Rent, rates and other office overheads £150,000

The above figures are based on a budgeted production of 2,000 computer desks, although there is production capacity for 2,500 desks. The budgeted selling price is £270 per desk.

**REQUIRED:**

a) Compute the break-even point in units and the margin of safety in units at the budgeted level of production.

b) Calculate the margin of safety as a percentage and briefly comment on your answer.

c) What is the profit at the budgeted level of production?

d) Harvey has had an offer to utilize his spare capacity by making 500 computer desks for a price of £230 per desk. He intends rejecting this offer as the price is well below his normal selling price.

Advice Harvey, giving reasons for your advice.

e) What is the significance of the term ‘relevant range’?
5. Henry Ltd

Henry Ltd, a retailer of men’s shirts, is investigating the likely sales prospects for next year. The original projection expected that 75,000 shirts would be sold at £10.60 each. The variable costs would be £4.20 per unit and the relevant fixed costs were expected to be £220,000.

Three possible alternative strategies have been suggested:

Option 1  The managing director thinks that more could be sold if the price were reduced by 5%.

Option 2  The production manager thinks that the price could be increased by 10% with only a small loss in sales.

Option 3  The sales manager proposes that the variable cost should be increased by 20p per unit as commission to the sales force, with a consequent saving in fixed costs of £15,000.

REQUIRED:

a) Calculate the break-even point if the original proposal is adopted.

b) Calculate the anticipated profit if the original proposal is adopted.

c) Calculate the levels of sales required under the proposals 1 and 2 to achieve the profit computed in (a).

d) Calculate the break-even point if the sales manager's proposal is accepted, and compare this with the break-even point under the original proposal.

*6. Activate Ltd

Activate Ltd proposes running summer camps for children. The variable costs per child per week are:
Food £18.00  
Direct labour £15.00  
Variable overheads £7.00  

**Additional information:**

The fixed overheads will be £20,000 for the five weeks when the summer camp runs.

The maximum number of children that the camp could accommodate is 200.

The company intends marketing the holidays at £117 per child per week, and they estimate that 150 children will take part in the camps each week.

**REQUIRED:**

**a)** What is the anticipated profit based on the above projections?

**b)** How many holiday weeks will have to be sold over the five weeks in order for the venture to break even?

**c)** What is the margin of safety in units and in percentage terms?

**d)** The directors know that on average most children will attend for one week only. The only way to entice parents to send them for a second week is to offer a reduced rate to children returning for a second week.

Advise the directors on whether or not this is likely to be worthwhile, based on the following estimates:

Reduced return rate = £65

Extra children on the summer camp = 160

(i.e. 40 extra children in each of weeks 2 to 5)
7. Wanda

Wanda runs a home laundry service, Kwicky Washy Ltd, where customers’ laundry is collected, washed, ironed, and delivered back to them for a set charge per bag. The service is offered to customers only within a limited radius of Oxford City Centre.

The following outgoings are associated with her business:

- Petrol costs average £2 per customer.
- The average customer sends two bags to the laundry service.
- The electricity costs for washing and drying are £1 per bag, and detergent costs 50 pence per bag.
- Wanda employs casual staff to handle, fold, and iron the laundry. They are paid £8 per hour, and each bag takes 1 hour, on average, of their time.

These staff are paid only for the hours they actually work.

- Wanda acts as delivery driver, book-keeper, and salesperson. She is paid a salary of £22,000 per annum.
- The delivery van depreciates at the rate of £4,000 per annum and the laundry machines (washers and dryers) at 20 pence per bag washed.
- Other van expenses include tax, insurance, and maintenance and amount to £2,000 per annum.

REQUIRED:

a) Identify which of the costs are fixed and which are variable.

b) Calculate the variable cost per bag of laundry laundered.

c) Calculate the total fixed costs per annum.
d) Comment on the relative significance of fixed and variable costs in the two businesses: Pippa’s in question 1 in the textbook and Wanda’s Kwicky Washy.