

Integrated Exam Question

BREAK-EVEN & PRICING

DBE NSC – May/June 2019 – Paper 1 – Question 2

2.1 Susan intends selling cups of Milo at the local taxi rank for extra money. Milo is a nutritious supplementary drink developed to provide active people with key vitamins and minerals.

ANNEXURE B shows the advertisement from her local store where she intends to buy her stock.

PRICES AT A LOCAL STORE

	MILO OPTION 1 R97,95 per unit 1 unit = 1 kg		PLASTIC SPOONS R12,75 for 50 plastic spoons
	MILO OPTION 2 R1 140,95 for 12 units = 1 kg		SUGAR R32,20 per unit 1 unit = 2,5 kg
	FOAM CUPS R1,78 for 1 foam cup		MILK R11,99 per unit 1 unit = 1 ℓ

[Adapted from www.makro.co.za]

Approach

- Extract information
 - use coloured pens
- Meaning of ‘per unit’
- Note number of items in a packet
- Measurement units & conversions
 - kilograms
 - litres

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Integrated Exam Question continued ...

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- 2.1 Susan intends selling cups of Milo at the local taxi rank for extra money. Milo is a nutritious supplementary drink developed to provide active people with key vitamins and minerals.

ANNEXURE B shows the advertisement from her local store where she intends to buy her stock.

Use ANNEXURE B to answer the questions that follow.

- 2.1.1 Determine the unit price when purchasing Milo option 2. (3)
- 2.1.2 Determine the total cost of 6 ℓ of milk. (2)
- 2.1.3 Explain the meaning of the word *cost price*. (2)
- 2.1.4 Susan decided to exclude the cost of water when calculating the cost price per cup of Milo.

TABLE 1 below shows how Susan calculated the cost price of ONE cup of Milo.

TABLE 1: COST PRICE OF ONE CUP OF MILO

QUANTITY BOUGHT	COST OF INGREDIENTS	AMOUNT USED FOR ONE CUP	COST PER CUP OF MILO
1 kg Milo	R97,95	0,04 kg	A
1 ℓ milk	R11,99	B	R1,20
2,5 kg sugar	R33,20	0,01 kg	R0,13
25 foam cups	C	ONE	R1,78
50 spoons	R12,75	ONE	R0,26
TOTAL COST			D

- (a) Calculate **A**, the cost of Milo per cup. (2)
- (b) Determine **B**, the amount of milk, in litres, used for ONE cup of Milo. (2)
- (c) Write down the value of **C**, the cost of 25 foam cups. (2)
- (d) Show that the cost of ONE cup of Milo, **D**, is R7,29. (2)
- 2.15. Determine the selling price of ONE cup of Milo if Susan's intended profit margin is 25%. (4)

Unit price ... divide by no. in packet

Cost price ... terminology

Rates ... same concept as tariffs i.e. Total cost = rate × no. of units

Profit margin ... understanding Q & applying percentages

QUESTION 2 [40 MARKS]

Q	Solution
2.1.1	$\frac{R1\,140,95}{12} \checkmark$ = R95,07916667 ✓ = R95,08 per kg ✓
2.1.2	= R11,99 × 6 ✓ = R71,94 ✓
2.1.3	Cost price of an item is the cost of making that item.
2.1.4 (a)	A – Cost of milo per cup $R97,05 \times 0,04 \text{ kg} \checkmark$ = R3,92 ✓
2.1.4 (b)	B – Amount of milk used $\frac{R1,20}{R11,99} \checkmark$ = 0,1 ℓ ✓
2.1.4 (c)	C – cost of 25 foam cups $R1,78 \times 25 \checkmark$ = R44,50 ✓
2.1.4 (d)	D – cost of one cup of milo ✓ ✓ $R3,92 + R1,20 + R0,13 + R1,78 + R0,26$ = R7,92
2.1.5	Profit = $R7,29 \times \frac{25}{100} \checkmark$ Selling price = R1,8225 + R7,29 ✓ Selling price = R9,1125 ✓ = R9,11 OR R9,10 ✓

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- 2.2 Susan started her business one month later and because of the price increase of products, it then cost her R9,50 to make ONE cup of Milo. She calculated that the daily fixed cost was R90,00 and she would be able to sell 100 cups of Milo per day. She will sell the Milo at R12,50 per cup.

Use the information above to answer the questions that follow.

- 2.2.1 TABLE 2 shows the income from the sale of cups of Milo.

TABLE 2: INCOME FROM THE SALE OF CUPS OF MILO

Number of cups of Milo (n)	0	20	30	40	80	100
Income in rand (R)	0	250	375	P	1 000	1 250

- (a) Determine the value of P in TABLE 2 above.
 (b) Write down an equation that can be used to calculate the income.
 (c) Identify the independent variable in TABLE 2.
- 2.2.2 Susan uses the following formula to determine the cost price of the cups of Milo:

$$\text{Cost} = R90,00 + R9,50 \times n \text{ where } n = \text{number of cups of Milo}$$

TABLE 3 shows the cost price for a number of cups of Milo.

TABLE 3: COST PRICE OF A NUMBER OF CUPS OF MILO

Number of cups of Milo (n)	0	20	30	Q	80	100
Cost price in rand (R)	90	280	375	612,50	850	1 040

Calculate the value of Q in TABLE 3 above.

- 2.2.3 The graph on ANSWER SHEET 1 shows the total income for making up to 100 cups of Milo. Use the information in TABLE 3 to draw another graph representing the cost from the selling of up to 100 cups of Milo.
- 2.2.4 Use the tables or graphs on ANSWER SHEET 1 to answer the following questions.
- (a) Explain the meaning of the word *break-even* in the context of the question.
 (b) Determine the number of cups of Milo at the break-even point.

Highlight key info:

... cost R9,50 to make 1 cup
 ... daily fixed cost R90,00
 ... sell 100 cups per day
 ... sell at R12,50 per cup

P = income ...

= selling price x no. of cups

Independent variable ...
 basic skills terminology

Finding Q ...
 reverse calculation

Check! Does my graph
 look like a typical
 break-even graph?

Break-even ... terminology

B/E point ... always x-axis

Q	Solution
2.2.1 (a)	$P = 40 \times R12,50 \checkmark$ $= R500,00 \checkmark$
2.2.2 (b)	Income in rand = $R12,50 \times \text{number of cups of milo/n} \checkmark \checkmark$
2.2.1 (c)	Number of cups of milo/n $\checkmark \checkmark$
2.2.2	$R612,50 = R90,00 + (R9,50 \times n)$ $R612,50 - R90,00 = R9,50 \times n \checkmark$ $n = \frac{522,50}{9,50} \checkmark$ $Q = 55 \checkmark$
2.2.3	<p>INCOME AND COST GRAPHS FOR MAKING AND SELLING OF CUPS OF MILO</p> <p>1A start of graph – cost price (0; 90) 1A end of graph – cost price (100; 1 040) 1A joining the points in a straight line graph</p>
2.2.4 (a)	The cost price for the number of cups of Milo sold and the selling price of that number is the same (equal). No profit or loss $\checkmark \checkmark$
2.2.4 (b)	30 cups $\checkmark \checkmark$