

QUESTION 1

On Saturdays Jean earns pocket money by delivering newspapers to clients. The graph below shows the distance from his house over the time spent that it takes to deliver the newspapers each Saturday.



- 1.1 What is the total distance from Jean’s house to the last client to deliver the newspapers? (1)
- 1.2 At what time did Jean deliver the last newspaper? (1)
- 1.3 How many minutes did it take Jean to:
 - 1.3.1 drive from his house to the second client? (1)
 - 1.3.2 drive the first 100 km? (1)
- 1.4 Determine at what time his trip back home begins. (1)
- 1.5 It takes Jean 15 minutes to deliver his first newspaper. Calculate the percentage time compared to the total time that it took him to reach his first client. (2)
- 1.6 Calculate Jean’s average speed, in meters per minute, for the first 100 km covered. Use the formula : $Average\ speed = \frac{Distance}{Time}$ (2)
- 1.7. His truck’s fuel consumption is 9 km per litre. If he drives 100 km and fuel costs R12,00 per litre calculate:
 - 1.7.1 the amount of fuel he will use for 100 km. (2)
 - 1.7.2 the cost of the fuel. (2)

1.8 Jean’s friend Susan asked him to help her with the accounting books of her business. Susan sells her “Chip Twisters” at a local flea market. The rent for a stall is R450 per week.

1.8.1 Write down a formula Susan can use to calculate her total weekly expenses to make “Chip Twisters”, if the variable cost to make one “Chip Twister” is R2,50. Write the formula as follows:
 Weekly cost (in rand) = 450 + _____ . (2)

1.8.2 Complete the following table, by writing down the values of a to c in your answer sheet.: (3)

Number of twisters (n)	0	400	800
Total Weekly Cost (R)	a)	b)	c)

1.8.3 Calculate how many “Chip Twisters” she has made if her total expenses equals R1 700 per week. (2)

1.8.4 The graph on **ADDENDUM A** shows Susan’s income from the “Chip Twisters”. Use the values of your table of 1.8.2 and draw a graph to indicate Susan’s expenses to make “Chip Twisters” on Addendum A. (2)

Use the graphs on **ADDENDUM A** to answer the following questions:

1.8.5 Determine the selling price for one “Chip Twister”. (2)

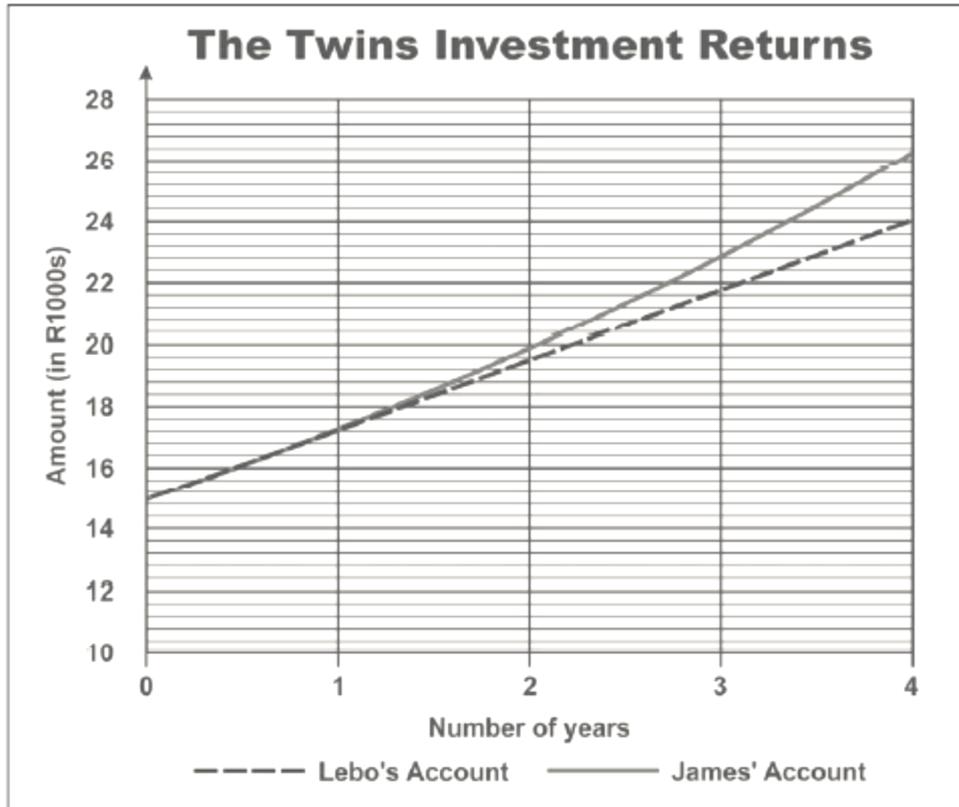
1.8.6 How many “Chip Twisters” must Susan sell to break even? Mark the break-even point with an “A” on your graph and write down the coordinates in your answer sheet. (2)

1.8.7 The recommended temperature for the oil to fry the “Chip Twisters”, is 220 °C, but the temperature on the fryer is indicated in degrees Fahrenheit. Convert 220 °C to degrees Fahrenheit. You may use the following formula:
 $^{\circ}\text{F} = \frac{9}{5}(C + 32)$ Round your answer to the nearest 10 °F. (2)

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QUESTION 2

Four years ago twins, Lebo and James each received the same amount of money from their parents. They invested their money into two different accounts. They received the same interest rate, but the one twin received simple interest and the other compound interest. The graphs below shows their investment returns for both accounts:



Source: Adapted from IEB 2014

Use the above graph to answer the following questions:

- 2.1 Determine the amount of money each child received from their parents. (2)
- 2.2 According to the graphs, did Lebo or James receive compound interest? (2)
- 2.3 Determine how much money will be in Lebo's account after the fourth year. (2)
- 2.4 Determine the amount of interest earned in Lebo's account at the end of the fourth year. (2)
- 2.5 Calculate the interest rate that Lebo received on his account. (4)
- 2.6 State which account (Lebo's or James') offers a better return on investment after the 4 years. (2)

- 2.7 Lebo began to work part-time and earned R12 000. He decided to invest this money so that he can put down a deposit for a car in 3years' time.

He has a choice of two accounts with two different types of interest:

- Account A – 13% compounded bi-annually
- Account B – 15% p.a. simple interest

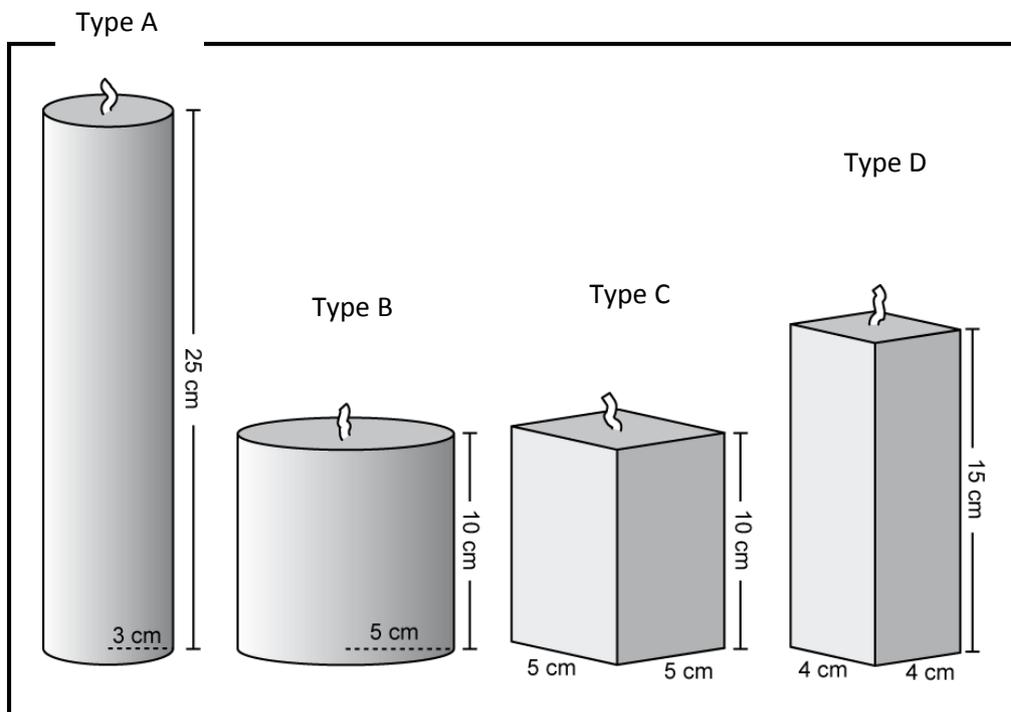
The table below shows the investment in Account A over the 3 years.

TIME	Amount at the beginning of each six month's period	Interest earned at the end of each six month's period.
6 months	R12 000	R780
1 Year	R12 780	R830,70
1 ½ Year	R13 611	R884,72
2 Years	R14495,72	(a)
2 ½ Years	(b)	(c)
3 Years	(d)	(e)

- 2.7.1 Calculate the omitted values of a to e of the above table. (5)
- 2.7.2 Calculate the interest gained after one year if Lebo should have deposited the R12 000 in Account B. (3)
- 2.7.3 Calculate the accumulated value of Account B after the 3 years. (2)
- [24]**

QUESTION 3

Lolwana is making candles in different shapes to sell at craft markets. She makes cylindrical candles and candles prisms with square bases. The different sizes are shown in the diagram below.



Source: adapted from Platinum CD-Rom G12

You may use the following formulas:

- Area of a circle = πr^2 .
- Circumference of a circle = $2\pi r$.
- Volume of a prism = area of base \times height.
- Surface area of a cylinder = $(2 \times \pi r^2) + (2\pi r \times \text{height})$
- Surface area of a prism is = $2 \times$ area of base + $4 \times$ area of sides

The dimensions of the candles are summarised in the following table:

	Radius (cm)	Base area (cm)	Height (cm)
Candle A	3	-	25
Candle B	5	-	10
Candle C	-	5×5	10
Candle D	-	4×4	15

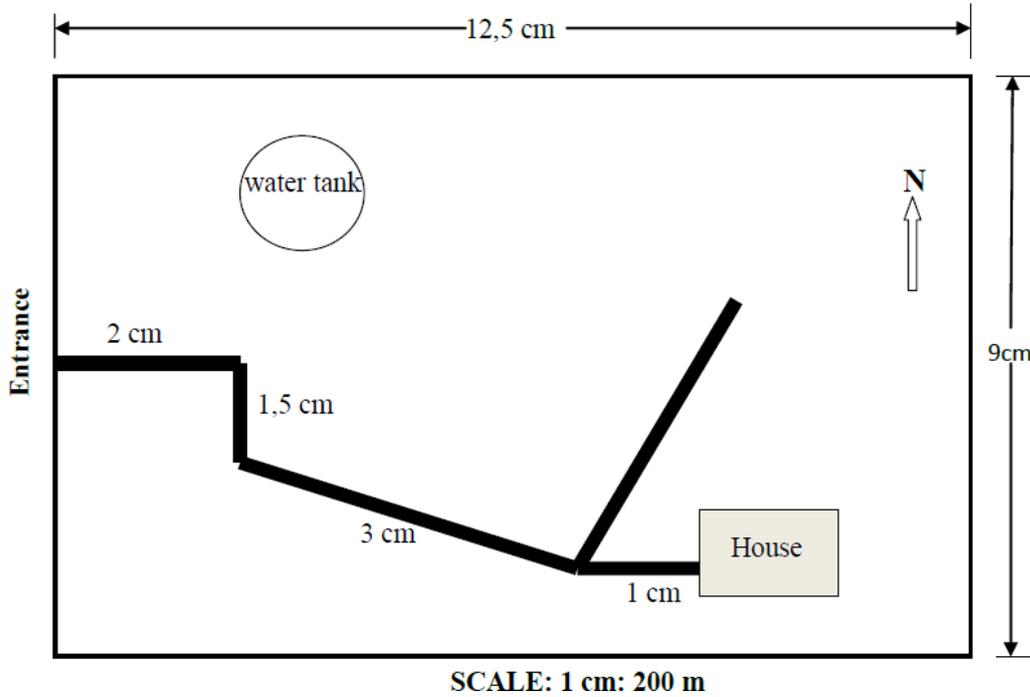
3.1 For each different type of candle (A, B, C and D), calculate the volume of wax (to the nearest cm^3) that she will need to make one candle. (8)

- 3.2 She melts the wax in batches of 4 litres at a time to pour into the moulds when making the candles. How many candles of type D can she make with 4 litres of wax? (Remember 1 litre is the same as 1 000 cm³.) (2)
- 3.3 About 5% of the wax she melts goes to waste in the process. Determine how many candles of type D can she then only expect to make with 4 litres of wax. (2)
- 3.4 Calculate the total outside surface area (to the nearest cm²) of each type of candle, type A,B,C and D. (8)
- 3.5 She paints the outside surface of the candles with silver paint. The type of paint she uses has to be put on in a layer that is 0,5 mm thick. This means that 1 ml of paint will cover 20 cm² of candle surface area. For Candle type B, calculate how much paint she needs to paint one candle. (Remember that 1 ml is the same as 1 cm³.) (2)
- 3.6 Would you expect the candle with the biggest volume also to have the biggest surface area? Explain why or why not. (2)

[24]

QUESTION 4

The sketch below represents the map of a cattle farm. The sketch is not drawn according to scale. Assume that the scale of the map is 1 cm : 200 m. Study the map and answer the questions that follow.



- 4.1 Use the scale and measurements given to determine the **length** of the farm in metres. (2)
- 4.2 Use the scale to and measurements given to determine the **width** of the farm in metres. (2)
- 4.3 Calculate the distance (in kilometres) from the entrance to the house. (2)
- 4.4 Give the general direction to the water tank from the house. (2)

[8]

QUESTION 5

The mathematical literacy teacher compiled a table that indicates the learners' marks for their exam out of a total of 100.

Learners / Students' marks									
63	46	55	59	56	69	41	50	52	55
40	85	83	57	49	65	60	68	70	58

- 5.1 Calculate the five number summary that describe the measure of spread (minimum, maximum, Quartile 1, Quartile 2 and Quartile 3) for the above data. (6)
- 5.2 Calculate the mean (average) of the above data. (2)
- 5.3 Determine the modal mark. (2)
- 5.4 Calculate the range of the marks. (2)
- 5.5 Calculate the inter-quartile range of the marks (2)
- 5.6 Name ONE advantages of using the mode rather than the mean as an indication of central tendency in this example. (2)

[16]**TOTAL: 100****END OF PAPER ☺**

ADDENDUM A

NAME AND SURNAME: _____

1.8.4:

INCOME AND EXPENSES FOR “CHIP TWISTERS”

