Grade11 Mathematical Literacy: Memorandum Paper 2

1.1 R3 000 to pay for bicycle and franchise fee. ✔ 1

1.2 R3,50 for ice creams
R0,50 for spoon and serviettes
R0,05 franchise fee
R25 for block of ice. ✔ ✔ 2

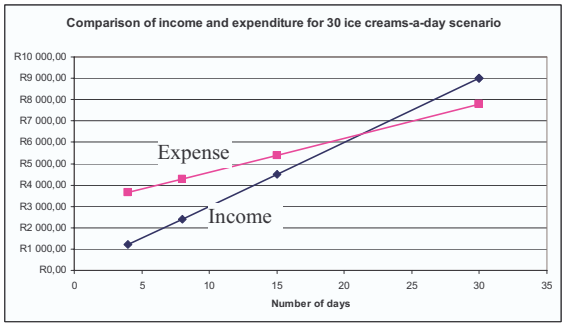
1.3 R10,00 per ice cream. ✔ Variable ✔ 2

1.4 R25 + 30(R3,50) + 30(R0,50) + 30(R0,50) ✔ ✔
= R25 + 30(R4,50)
= R160 ✔ 3

1.5 a R3 000 + 8 × (R25 + 30(R4,50)) ✔ = R4 280 ✔
b R3 000 + 15 × (R25 + 30(R4,50)) ✔ = R5 400 ✔
c R3 000 + 30 × (R25 +30(R4,50)) ✔ = R7 800 ✔ 6

1.6 a 8 days × 30 ice-creams × R10 ✔ = R2 400 ✔
b 15 days × 30 ice-creams × R10 = R4 500 ✔
c 30 days × 30 ice-creams × R10 = R9 000 ✔ 6

1.7



Graph labels ✔
Expense graph ✔ ✔
Income graph ✔ ✔
Appropriate scale ✔ 6

1.8.1 For 30 ice-creams per day: about 20 days ✔
For 60 ice-creams per day: about 10 days ✔ 2

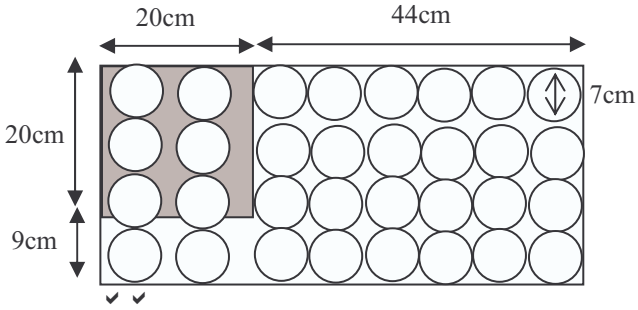
1.8.2 30 ice-creams per day: after about 30 days
60 ice-creams per day: after about 18 days ✔ 2

2.1 Scale of diagram: Using 1,8cm represents 45cm, you get a scale of 1:25 ✔
Dimensions of lid on the drawing: 1,1cm by 0,8cm ✔ ✔
Dimensions of lid: 27,5cm by 20cm ✔ ✔ 5

2.2 External dimensions: 80cm × 46cm × 45cm
But 2 × 8cm = 16cm must be subtracted from each side ✔
Internal dimensions: 64cm × 30cm × 29cm ✔ ✔ ✔ 4

2.3 Let $\pi = 3,14$
Vol = 3,14 × (3,5cm)² × 5,4cm ✔ ✔
= 207,78cm³ ✔ ✔ 4

2.4 A top view of the bottom of the cooler box with the block of ice in it would look like this:



✔ ✔
The height of the cooler box where there is no ice is 30cm. This means you can fit in (30cm ÷ 5,4cm) = 5,55 tubs ✔
This means that there can be 5 layers of ice-creams.
∴ Number of ice-creams in cooler box where there is no ice = 26 × 5 = 130 tubs ✔

The height of the cooler box where there is ice is 30cm − 20cm =10cm. This means you can fit in (10cm ÷ 5,4cm) = 1,9 tubs
This means that there can only be 1 layer on top of the ice. ✔
∴ Number of ice-creams in cooler box where there is ice = 6 × 1 = 6 tubs
Total number of tubs = 136 tubs. ✔ 6

3.1 The earliest bus is at 06:10 ✔ so he should leave his home not later than 05:55. ✔ He takes 10 minutes to walk to the station so he will get there at about 06:05. ✔ He will catch the bus at 06:10 and arrive at Parktown at 06:49. ✔ He takes about 15 minutes to walk to his bicycle so he will arrive at about 07:04. ✔ 5

3.2 He gets on very near to the beginning of the bus route and gets off at Victoria/Oxford which means he is zone 4 which will cost him R8,30. ✔ ✔ ✔ 3

3.3 The last bus of the day is at 17:36. ✔ He must pack away before 17:20 ✔ so that he has at least 15 minutes to walk to the station. He will arrive at Southgate Centre at 18:25 ✔ and he takes 10 minutes to walk home. This means he will arrive at about 18:35. ✔ 4

4.1.1 149 ✔

4.1.2 142 ✔

4.1.3 149 ✔ 3

4.2 Some people did not fill in their gender. ✔ 1

4.3 It appears as if there were a lot more males buying ice-creams than females whereas in reality there was a difference of only 4. ✔ ✔ This impression is created by starting the horizontal axis at 67 and not at zero. ✔ ✔ By 4

doing this the graph emphasises the difference between the males and females.

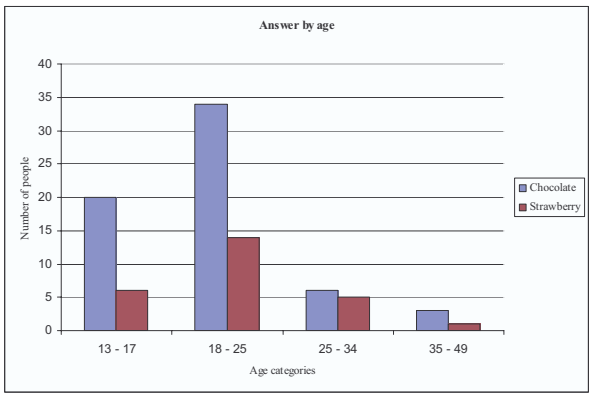
4.4 There are only 4 people in the sample who are older than 35 years of age. ✔ This is too small a number in this age group to test the preference of flavours for the whole population of 35 years of age. ✔ 2

4.5 Gained: It is easy to compare the males and females when looking at a particular flavour. For example: it is easy to see that more males than females like Licorice flavoured ice-cream. ✔
Lost: You cannot compare the males with the other males i.e. you can't see which of the flavours the males like best. ✔ 2

4.6

	13-17	18-24	25-34	35-49
Choc	20	34	6	3
Straw	6	14	5	1

✔ ✔ ✔ ✔



✔ labels on graph
✔ ✔ ✔ graph correct 8

4.7 Advantage of "Answer by age" using percentage: You can compare the different flavours within an age group even although there are a different number of people in each age group i.e the 25-34 age group like strawberry the most out of all the age-groups. ✔
Disadvantage: You can't compare within the same age group. ✔
Advantage of "Answer by age" using actual numbers: You can compare the different age groups. i.e you can see that strawberry is the most popular of all the age groups. ✔
Disadvantage: You can't compare within the same flavour as the number of participants in each age group differs. ✔ 4

4.8 Licorice: $(12 \div 149)\% \times 20 = 1{,}6$ ✔
Bubblegum: $(32 \div 149)\% \times 20 \approx 4$ ✔
Vanilla: $(16 \div 149)\% \times 20 \approx 2$ ✔
Stawberry: $(26 \div 149)\% \times 20 \approx 3$ ✔
Chocolate: $(63 \div 149)\% \times 20 = 8{,}5$ ✔
Because chocolate is the most popular flavour it would be sensible to rather buy 9 boxes of chocolate and only 1 box of licorice. ✔ 6

5.1 Number of kilograms of ice cream:
$45 \times 0{,}200\text{kg} = 9\text{kg}$ ✔
Number of kilograms of dry-ice:
$\frac{9}{4} + 1\frac{1}{2} = 3\frac{3}{4}\text{kg}$ ✔ ✔
He will need:
$3\frac{3}{4}\text{kg} \times 2 = 7\frac{1}{2}$ half-kilograms of dry-ice ✔ ✔
Thabo must buy 8 half-kilograms of dry-ice ✔ 6

5.2 Number of kilograms of dry-ice:
$7 \div 2 = 3\frac{1}{2}\text{kg}$ ✔
Number of kilograms of food:
$\frac{x}{5} + \frac{1}{2} = 3\frac{1}{2}\text{kg}$
$x = 3 \times 5 = 15\text{kg}$ ✔ ✔
Number of ice creams:
$15\text{kg} \div 0{,}2\text{kg} = 75$ ice creams ✔ 4