

NORMAN HENSHILWOOD HIGH SCHOOL EXAMINATIONS



DATE	30 May 2011
GRADE	11
SUBJECT	Mathematical Literacy
TIME	2,5 Hours
MARKS	120
EXAMINER	LA Jansen
MODERATOR	E Daniels; J Crosswell

Checked 2/6

SHOW ALL CALCULATIONS
ROUND OFF ANSWERS CORRECT TO 2 DECIMAL PLACES, UNLESS OTHERWISE STATED

Question 1

- 1.1 Calculate $128 - 7,9 + 15,16$ (2)
- 1.2 Calculate $0,478 \times \frac{1}{4} (59 - 3) + 2,47$ (3)
- 1.3 Decrease 357 by 29% (2)
- 1.4 Convert $\frac{2}{7}$ to a decimal fraction (1)
- 1.5 Simplify the following ratio 3,2 : 0,48 (2)
- 1.6 The ratio of girls to boys in a class is 3 : 5. If there are twelve girls, what is the total number of learners? (3)
- 1.7 Determine how many British Pounds can be bought for R12 487,45 if the exchange rate is R11,03 (2)
- 1.8 Carter works as a vendor selling key rings. He earns R25 per hour plus a further R4 per key ring he sells. If he sells 52 keys rings within 5 hours, how much does he earn? (3)
- 1.9 A bag containing 3 blue, 5 red and 2 green tokens is presented to a contestant in a game show. The contestant is asked to choose a token from the bag.
 - a) What is the probability that the first token drawn from the bag will be green? (2)
 - b) The first contestant keeps the token and passes the bag to the next contestant. What is the probability that the next token drawn will be a red one? (2)
- 1.10 Use the formula $A = P(1 + i)^n$ to calculate how much interest will be earned if R53 286 is invested for 3 years, compounded at 8,25% p.a., compounded quarterly. (4)
- 1.11 Consider Neva's marks for Maths Literacy assessments for the term

71	67	83	99	41	71	86
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 For his marks, determine:
 - a) the mean (3)
 - b) the mode (1)
 - c) the median (2)
 - d) the range (2)
- 1.12 A scientist notices that the 18 000 bacteria in a dish doubles every hour.
 - a) How many bacteria will there be in the dish after 6 hours? (3)
 - b) Write the answer to question 1.12 a) in scientific notation. (2)
 - c) After how many hours will there be 18 432 000 bacteria in the dish? (2)
 - d) Write $3,58 \times 10^{-2}$ as an ordinary number (2)
- 1.13 The price of diesel is R10,03 per litre. The capacity of a Jeep tank is 75 litres. What will it cost to fill the tank? (2)

Question 2

Although water seems to be in endless supply, it is actually a limited natural resource. The following table shows the number of litres of water used around the house.

Activity	Amount of water used
Full bath	85 litres
Dripping tap(20 minutes)	1 litre
Wash clothes by hand	40 litres
Wash hands under running tap	1 litres
Shower	60 litres
Washing clothes in an automatic machine	85 litres
Washing and rinsing dishes	7 litres
Washing car	40 litres
Flushing the toilet	13 litres
Water garden for 1 hour using sprinkler	100 litres
Remember that 1 kilolitre = 1000 litres	
1000 ml = 1 litre	

2.1 The Jacobs family uses water for the following activities in a day:

Number of toilet flushes	15
Number of bath runs	3
Number of glasses of water(350 ml) to drink	24
Number of times hands are washed under a running tap	15
Number of loads of washing in a washing machine	3
Number of times dishes are washed	5
Watering the garden for 1 hour	1 hour

- a) How many litres of water did they use in one day? (8)
- b) How many litres of water will they use in a 30-day month assuming they use the same amount each day? (3)
- Convert your answer from litres to kilolitres, then round off to the nearest whole number.

2.2 We all have to pay for the water we use. We are charged a variable rate for this water. Those who use less than 6 kilolitres(6000 litres) per month get their water supply free.

The table below gives an indication of the water charges per kilolitre of consumption.

2009/2010 Domestic water Tariffs	
First 6 kilolitres	Free
7-10 kilolitres	R 3,75 per kl
11-15 kilolitres	R 4,50 per kl
16-20 kilolitres	R 6,30 per kl
21-40 kilolitres	R 7,29 per kl
> 40 kilolitres	R 8,40 per kl

- a) How much would the Jacobs family pay for their monthly water consumption. (6) [17]
 (Use the tariffs given above and your answer to question 2.1(b)?

Question 3

Marcel opened a frozen yoghurt kiosk near the local cinema. He has a chest freezer which is 150cm long, 80cm wide and 160 cm high.

- 3.1 a) Use the formula $V = l \times b \times h$ to calculate the capacity of the freezer in cm^3 (2)
 b) If $1000\text{cm}^3 = 1$ litre convert your answer in (a) to litres (1)
- 3.2 Marcel buys the frozen yoghurt in 25 litre containers. (2)
 Calculate the approximate number of containers the freezer is able to hold. (2)
- 3.3 Will this number of containers actually fit into the freezer? Explain your answer. (2)
- 3.4 Marcel has drawn up the table below which shows his expenses:

Item	Cost
Frozen yoghurt	R200 for 25 litres
Container(500ml)	R1,50 each
Toppings	R0,50 per serving

- a) How many 500 ml are there in 25 litres (2)
 b) What does it cost Marcel for a 500ml of frozen yoghurt, a container and a topping? (3)
 c) If it costs Marcel R3,50 for a small tub of yoghurt with a topping, calculate how much he must sell it for in order to make a 25% profit. (2)
- 3.5 A customer first has a choice of which flavour of yoghurt: vanilla or chocolate and then a choice of the following toppings: smarties, fudge or caramel. (4)
- a) Draw a tree-diagram to show all the possible choices(outcomes). (4)
 (Show the fractions on each branch)
- b) What is the probability that someone would choose vanilla with caramel topping? (2)
 c) What fraction is chocolate yoghurt only with no topping? (2) [22]

Question 4

A cycle tour has been organized to encourage learners to keep fit.

- 4.1 Copy and complete the following table which shows some of the speeds and times taken to complete the tour. Remember: **Speed = distance ÷ time** (3)

Speed (km/h)	30	40	60		
Time taken(h)	8	6	3	2	

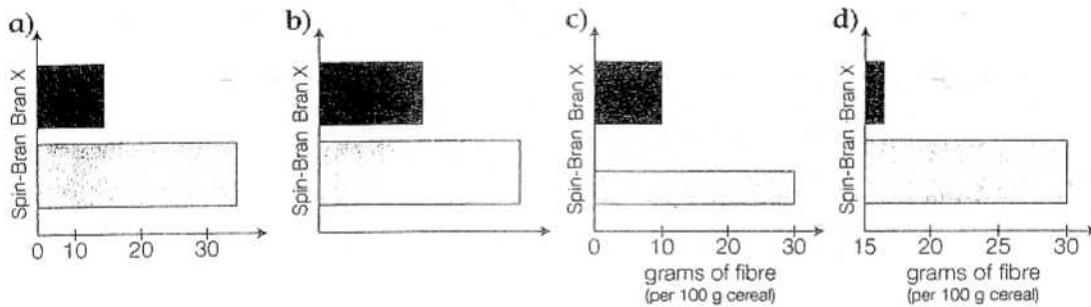
- 4.2 Name the dependent and the independent variable. (2)
- 4.3 Calculate the distance each cyclist must cover to complete the tour (2)
- 4.4 If a learner travels at an average speed of 100 km/h, how long will he take to finish the tour?(3)
 (Give your answer in hours and minutes)
- 4.5 Draw a graph to show the relationship between the speed travelled, and the time taken. (4)
 4.6 Does the graph represent a direct or an inverse proportion? Give a reason for your answer. (2) [16]

Question 5

- 5.1 At the Elfin Car Wash, Jonty employs three workers and pays a total of R2 250 a week in wages. If each of the workers works 6 hours a day for 5 days, calculate their hourly rate of pay. (4)
- 5.2 It takes 2 hours for 3 workers to complete a job. How long would it take 5 workers to do the same job. Give your answer in hours and minutes. (3)
- 5.3 Jonty is able to complete 3 jobs a day using 2 workers, how many jobs would he be able to complete if he employed 5 workers? (2) [9]

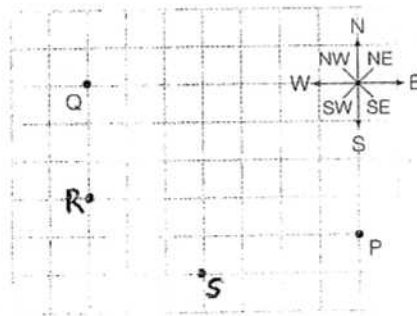
Question 6

- 6.1 The Spin Company wants to promote their new cereal, Spin Bran. They want to show that this bran gives more fibre than another cereal called Bran X. Explain how each of the following graphs could be misleading. (4)



- 6.2 Give the bearing of the following points.

- a) $P \rightarrow Q$
 b) $Q \rightarrow R$
 c) $R \rightarrow S$



- 6.3 A map has a scale of 1: 150 000

- a) Calculate the actual distance between two towns, if the distance on the map is 5,4 cm (2)
 b) If 1km = 100 000 cm convert your answer in 1.1 a) to kilometres. (2)