MATHEMATICAL LITERACY
Grade 12

FINANCE   **30 JUNE 2014**

Check List

Make sure you …..

- Revise how to interpret different financial documents including tariff systems
- Are able to draw graph and interpret graphs of income and expenditure
- Can show when a business is making a profit or a loss or breaking even
- Revise how to calculate the interest earned on an investment
- Evaluate the terms of a loan or hire purchase agreement
- Are able to analyse data in the form of tables or graphs relating to inflation
- Can complete calculation of personal income tax given tax tables
- Know how to use exchange rate data to convert between different currencies

Exam Questions

Question 1

(Adapted from DBE Feb 2014 Paper 1, Question 3.1)

One of the most important deciduous fruits grown in South Africa is peaches. The peach industry creates job opportunities in the production and processing sectors in South Africa. Farm workers' wages are regulated by South African labour law. Farm workers generally work nine hours a day, five days a week. TABLE 1 shows the minimum wages for farm workers for the period 1 March 2009 to 1 March 2011.

TABLE 1: Wage rates for farm workers from 2009 to 2011

YEAR	HOURLY	WEEKLY	MONTHLY
2009	R6,31	A	R1 230,45
2010	R6,74	R303,30	B
2011	R7,04	R316,80	R1 372,80

1.1   Calculate the missing value A.   (3)

1.2   Calculate the missing value B by using the formula:

   Monthly rate (in rand) = Weekly rate (in rand) ×13   (2)
   **   3**

1.3   Calculate the percentage increase in the weekly rate from 2010 to 2011.

   Use the formula:

   Percentage increase =   Difference in weekly   x   100%   (3)
                             Initial weekly rate

Question 2
(Adapted from DBE Feb 2014 Paper 2, Question 2.1)

The school governing body (SGB) of Onverwag High School was concerned about the high cost of transporting learners for educational excursions. It was decided to raise funds to purchase a school bus in 2 years' time.

The current purchasing price of a new bus is R650 000,00.
Calculate the purchase price of a new bus at the end of 2 years if the purchase price of a new bus increases by 7,2% per annum due to inflation. Give your answer to the nearest hundred rand

The following formula may be used:
$$A = P(1 + i)^n$$
where   A = increased value   P = initial value   i   = annual interest rate   n = number of years   (4)

Question 3
(Adapted from DBE Feb 2014 Paper 2, Question 5)

 Financial institutions granting home loans use a loan factor table to determine the monthly repayment on a home loan. TABLE 3 below is a loan factor table that shows the monthly repayments per R1 000 on a home loan with interest rates ranging from 14,25% to 16% per annum, over 15, 20, 25 or 30 years.

Table 2: Loan factor table for calculating monthly repayments on a home loan per R1 000

Annual Interest Rate	LOAN FACTOR			
	15 years	20 years	25 years	30 years
14,25%	13,49	12,62	12,23	12,05
14,50%	13,66	12,80	12,42	12,25
14,75%	13,83	12,98	12,61	12,44
15,00%	14,00	13,17	12,81	12,64
15,25%	14,17	13,35	13,00	12,84
15,50%	14,34	13,54	13,20	13,05
15,75%	14,51	13,73	13,39	13,25
16,00%	14,69	13,91	13,59	13,45

[Source: *Property and Tax Guide 2012*]

The monthly repayment can be calculated using the following formula:

Monthly repayment (in rand) = (loan amount ÷ 1 000) × loan factor

3.1   The National Credit Act (NCA) stipulates that the home loan amount that a person qualifies for should be calculated based on disposable income*. Pragashni is planning to buy a house and has a disposable income of R17 550 per month.

*[*Disposable income – the total amount of money a person has available in a month, after all compulsory expenses have been deducted from the person's gross salary]*

3.1.1   Calculate the maximum loan amount she qualifies for if she wants to take a loan over 25 years at an interest rate of 15,25% per annum.   (4)

3.1.2   Give TWO possible reasons why it would not be advisable for her to take the full maximum loan amount that she qualifies for.   (4)

3.2   Pragashni has home loan options from EP Bank and STL Bank. To make a comparison, she summarised the two options in Table 3 below

	EP BANK	STL BANK
Loan amount	R1 100 000	R1 100 000
Loan period in years	25	20
Annual interest rate	15,25%	16%
Total repayment	R4 290 000	x

3.2.1   Determine, showing ALL calculations, which home loan option will be advisable for her to choose by using the missing value for x. Give ONE reason for this choice.   (8)

3.2.2   She can afford a maximum of R13 255 for her monthly repayments. Determine, showing ALL calculations, the period and interest rate that will best suit her needs.   (5)

3.3   Line A in the graph below shows the loan option that was offered to Pragashni by EP Bank at an interest rate of 15,25% per annum..

TOTAL REPAYMENTS TO EP BANK FOR A LOAN AMOUNT OF R1 100 000 AT DIFFERENT INTEREST RATES
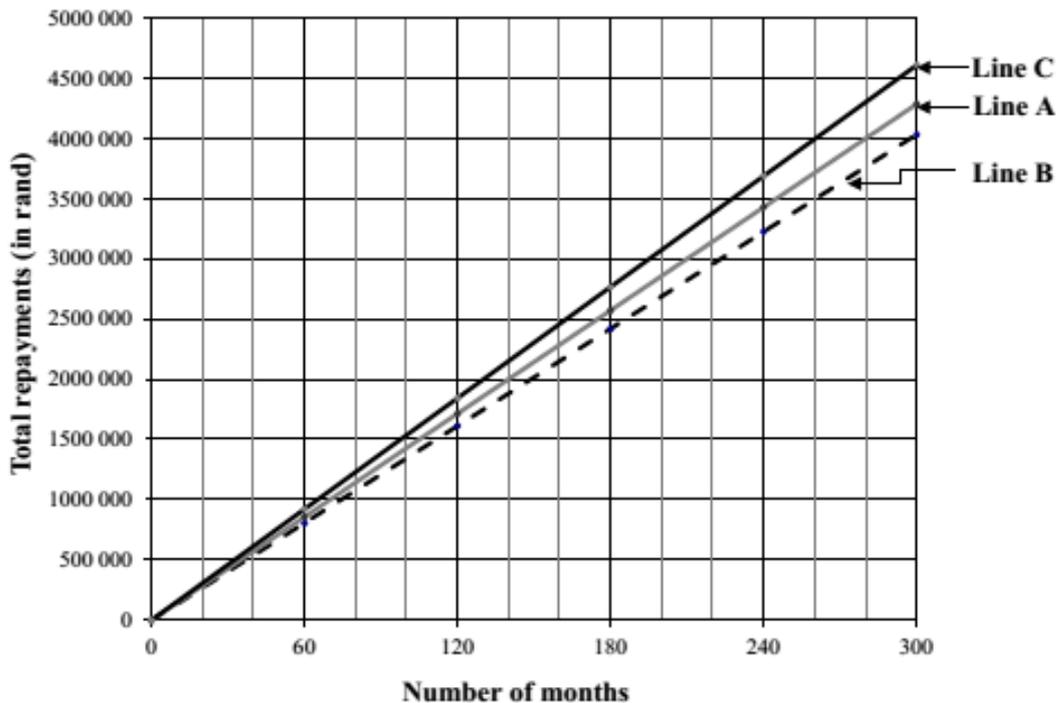
Identify the line that shows a loan option at 14,25% and the line that shows a loan option at 16%. Give a reason for your answer.   (4)

Question 4
*(Adapted from DBE Nov 2013 Paper 1, Question 6)*

Mrs Louw bought a knitting machine for R5 600,00 to make the jerseys. It will cost her an average of R60,00 (including wool and electricity) to make one long-sleeved jersey (irrespective of the jersey size). The school shop buys a long-sleeved jersey for R95,00 and then sells it to the learners. Table 4 below shows the relationship between the costs and income for making and selling 200 long-sleeved jerseys.

TABLE 4: Costs and income for making and selling 200 long-sleeved jerseys

	NUMBER OF JERSEYS MADE						
	0	**60**	**A**	**120**	**160**	**180**	**200**
Costs (in rand)	5 600	9 200	11 600	12 800	15 200	16 400	17 600
Income (in rand)	0	5 700	9 500	11 400	15 200	**B**	19 000

4.1   Determine the missing values A and B.   (4)

4.2   The a line graph on the next page shows Mrs Louw's income from the sale of 200 long-sleeved jerseys Draw another line graph on the same grid representing the costs of making 200 long-sleeved jerseys.
                                                                                                  (4)

4.3   Determine the minimum number of jerseys Mrs Louw should make and sell to start showing a profit.
                                                                                                  (2)

COSTS AND INCOME FOR MAKING 200 LONG-SLEEVED JERSEYS
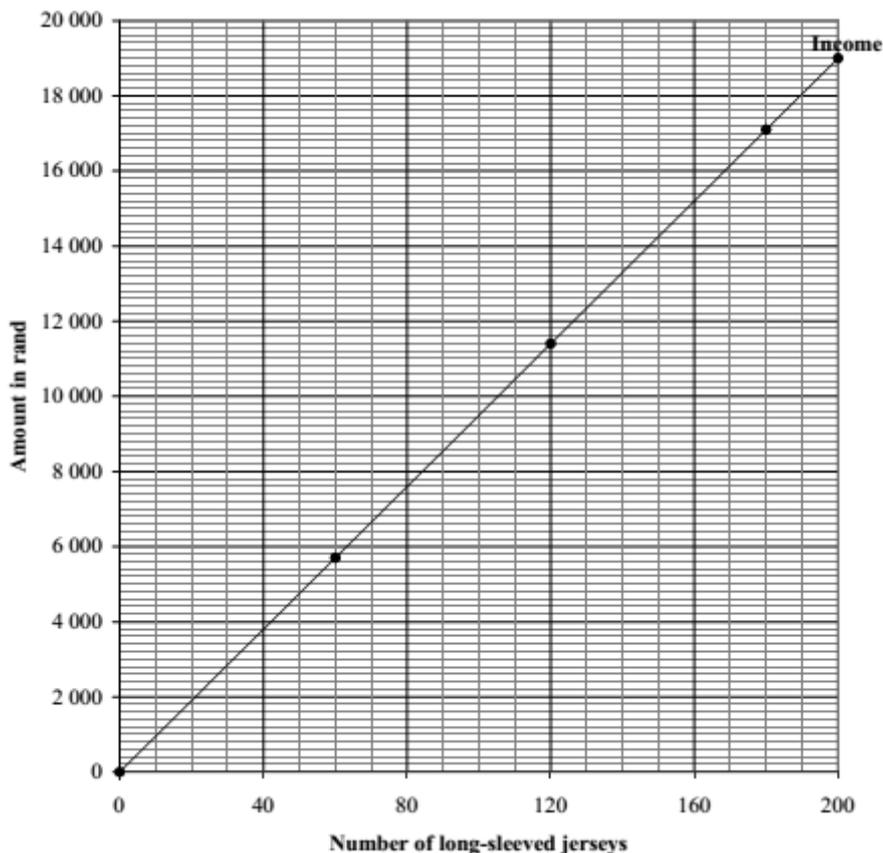
Test Yourself

Consider the following when answering the questions below

Jimbo has a Pizza shop. Consider the table below which shows the income and expenses for a particular month:

Rent	R4500
Vehicle Payments	R3100
Petrol	R4234,50
Ingredients	R6542,29
Electricity	R2018,56
Water	R421,78
Salaries	R9600
Sales	R42365,50

Question 1

How much does the water cost this month?

A.   R2 018,56
B.   R9 600,00
C.   R421,78
D.   Not known

Question 2

What cost the company R4 234,50 during this month?

A.   Sales
B.   Petrol
C.   Water
D.   Vehicle payments

Question 3

If three people are employed, determine their individual salary if each earns the same amount.

A.   R9 600,00
B.   R4 800,00
C.   R3 200,00
D.   R2 400,00

Question 4

List all the fixed expenses:

A.   Sales
B.   Rent, vehicle repayments, petrol, salaries
C.   Ingredients, petrol, electricity, water
D.   Rent, vehicle payments, salaries

Question 5

Calculate the total expenses.

A.   R72 782,63
B.   R42 365,50
C.   R30 417,13
D.   R20 817,13