Worksheet 4 – Finance

Mathematical Literacy – Grade 11

1. Jennifer decided to close her cupcake shop and rather make cupcakes and sell them from home. She already owned the building that her shop was in so she rented the building out and saved the money so that she could buy better equipment. She decides to set up a budget so she can decide how much she can afford to save every month. Note that Jennifer increased the rent by 10% from the first of March.

	JAN	FEB	MARCH
SUMMARY			
Monthly Income	15 332	19 888	21 804
Monthly Expenses	14 850	17 950	17 650
Income less Expenses = Profit	482	1 938	4 154
MONTHLY INCOME	**15 332**	**19 888**	**21 804**
Sales	9 750	14 250	15 750
Interest Earned	100	130	160
Rent Income	5 000	5 000	5 500
Other	482	508	394
MONTHLY EXPENSES	**14 850**	**17 950**	**17 650**
Salaries and wages	10 000	10 000	10 000
Utilities	1 625	2 375	2 625
Advertising	300	300	300
Stock	2 925	4 275	4 725
Equipment	0	1000	0

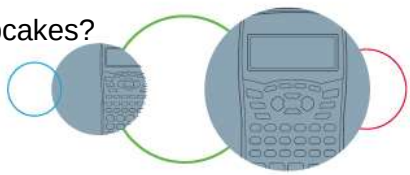
a) If Jennifer wants to keep 40% of her monthly profit for capital and 60% for equipment. How much money will she have to spend on equipment at the end of March?

b) Can you identify any fixed income that Jennifer earns?

c) What percentage of Jennifer's expenses in February go towards salaries?

d) What is the selling price of one cupcake if Jennifer sold 950 cupcakes in February?

e) How much money does Jennifer earn if she sells 2 843 cupcakes?



f) Use the formula given below to calculate the mark up on one cupcake if it costs R 4.50 to produce on cupcake $MU\ \% = \frac{selling\ price - cost\ price}{selling\ price} \times 100$

2. The table below compares two different cell phone packages. Use the given information to answer the questions that follow.

	Call package A	**Call package B**
Vodacom to MTN/Cell C (off peak)	R 1.35/minute	R 1.10/minute
Vodacom to MTN/Cell C (peak)	R 3.08/minute	R 2.85/minute
Vodacom to Telkom (peak)	R 3.00/minute	R 2.30/minute
Vodacom to Vodacom (peak)	R 3.00/minute	R 2.00/minute
Vodacom to Vodacom/Telkom (off peak)	R 1.50/minute	R 0.96/minute

a) Sue is on package A and decides to phone a friend who is on Cell C for 3 minutes and 46 seconds during off peak times. What did Sue pay for this phone call?

b) If Sue buys R 30.00 airtime and phones a friend who only has a Telkom line during peak hours. How long can they talk before Sue runs out of airtime?

c) Joanna spends 3 minutes on the phone to her brother during peak hours, if the call cost her R 8.55 and she is on call package B, determine which service provider her brother is with.

d) Thando is on package B and he spends R 24.00 on a call to his friend who is on Vodacom during peak hours. How long was the phone call that Thando made?

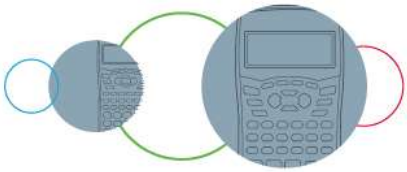
e) How much money could Thando have saved by making the same phone call during off peak times?

3. Jeffrey plans to open up a biscuit factory. He plans on selling two kinds of biscuits; choc-chip delights and caramel dreams. Use the information given below to answer the questions that follow.

- It costs R 6.50 to make one box of choc-chip delights.
- It costs R 6.00 to make one box of caramel dreams.
- He adds an 120% mark up to both kinds of biscuits.
- Fixed running costs for the biscuit factory are R 2 000
- The factory always produces two boxes of caramel dreams for every box of choc-chip delights that is produced.

a) What is the selling price for one box of choc-chip delights?

b) What is the selling price for one box of caramel dreams?



c) Complete the tables below:

Choc-chip delights

Number of units	50	80		150	180	200	250	300
Cost		520	650	975	1170	1300		
Income	715	1144	1430	2145	2574		3575	

Caramel dreams

Number of units		160	200	300	360	400		
Cost	600	960		1800	2160	2400	3000	3600
Income	1320	2112	2640	3960		5280	6600	7920

d) Draw a graph to represent the total biscuit sales and the total income for the biscuit factory. Remember to add the two kinds of biscuit together and include the fixed running costs as well.

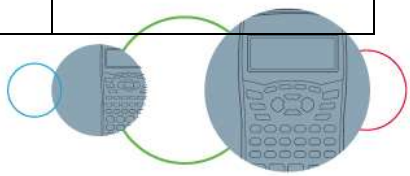
e) Indicate the breakeven point on your graph.

f) Will the factory make a profit if they sell 420 caramel dreams and 210 choc-chip delights?

g) Jeffrey decides that it will be easier to sell both packets of biscuits for R 15.00 each. Calculate the mark up for both kinds of biscuits using the new price.

4. Johan wants to go on holiday to Mauritius but he does not have enough money and he decides that he will go to the bank and take out a loan. He goes to visit 3 banks and they all give him various loan terms as shown in the table below. Use this information to answer the questions that follow. Note that Bank A has a minimum loan amount that they will offer Johan. Johan's trip will cost approximately R 24 000. Johan only has R 10 000 saved up.

BANK NAME	BANK A	BANK B	BANK C
LOAN AMOUNT (R)	20 000	14 000	14 000
INTEREST RATE p.a.	7.0 %	8.2 %	9 %
LOAN TERM (months)	30	48	36
AMOUNT REPAYABLE			
MONTHLY INSTALMENT			



a) How much money will Johan pay back in total for each loan?
Fill in the answers on the table above.
Use the following formula: $A = P(1 + i)^n$
A = Total amount repayable
P = Loan amount
i = Interest rate
n = Loan term

b) What are the monthly instalments that Johan will have to pay for each loan?
Fill in the answers on the table above.

c) Johan speaks to a friend who is a financial planner who advises him to look at how long it would take to save up to go to on the trip. He knows that Johan can get an interest rate of 12 %. Calculate how long it would take Johan to save up enough money to go on holiday If he invests the R 10 000 at 12 % and every 6 months he adds R 2 700 (R450 x 6 that he saved each month) to the lump sum. You can use the same formula as above.

d) Which option would you recommend to Johan based on all the loan and saving figures that he worked out and knowing that he does not need to take a holiday right away? Give a reason for your answer.

5. Felicity works for the ABC Electronics Company and she has got a job offer from Magic Electronics, she wants to compare the salary at each company to decide whether she should take the new job at Magic Electronics based on which income is higher.

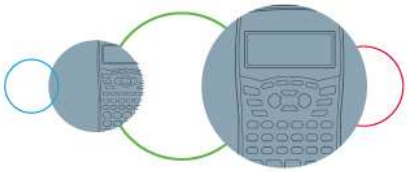
ABC Electronics

Employee Name: Felicity De Beer

Pay Period: 1 June to 30 June, 2013

Monthly Payment	
Gross salary	20 000
Overtime Pay	2 500
Total Pay	22 500

Company Benefits	
Medical Aid Allowance	2 130
Retirement Fund Allowance	5% of gross salary
Travel Allowance	2 850
Total Benefits	5 980



Deductions	
Medical Aid contribution from employee	1 370
Retirement Fund contribution from employee	1 250
Tax Amount	3699.25
	6319.25
TOTAL AMOUNT PAYABLE TO EMPLOYEE	16 180.75

Magic Electronics offered Felicity a total package of R 29 000 per month CTC. (CTC means that this is the total amount an employee will get payed, before tax and deductions) She will still pay the same total amount for medical aid and retirement fund.

a) Calculate how much tax Felicity would pay if she worked at Magic Electronics if she was taxed at 19%.

b) Calculate how much ABC Electronics contributes to Felicity's retirement fund each month.

c) What is the total cost of Felicity's medical aid?

d) What is the total cost of Felicity's retirement fund?

e) How much money will Felicity come home with at the end of the month if she were to take the job at Magic Electronics?

f) Calculate the difference between what Felicty earns at ABC Electronics and what she could earn at Magic Electronics.

g) Which job should Felicity take? Give a reason for your answer.

6. Johnathan owns a clothing company that sells dresses. He sells each dress for R 150 and it costs him R 45.00 to make one dress. The company has a fixed cost of R 2 400 every month.

a) Draw a graph to represent profit and costs for the clothing company.

b) How many dresses must the company sell to start making a profit. Indicate this point on the graph.

c) How many dresses must the company sell to start making a product.

d) Calculate how much income the company would earn if they sold 100 dresses in one month.

e) Calculate the total profit if the company sold 100 dresses in one month.

f) Jonathing gets an order from a company in the United States, they order 80 dresses at R 150.00 each, if the rand is R 10.02 to the dollar, how much will the order be worth in dollars?