Worksheet 7 – Finance – Interest, banking and inflation

Mathematical Literacy – Grade 11

1. Explain what the following investment terms mean:

   a) Interest rate
   b) Investment term (life)

   c) Monthly payment
   d) Principal

2. Explain what the following loan terms mean:

   a) Borrower
   b) Deposit

   c) Loan term (life)
   d) Lender

   e) Real (total) cost of a loan
   f) Interest rate

   g) Residual

3. Kim wants to buy herself a new television. She looks at her finances and realises that she does not have the money to buy a new TV right now so she decides to buy a TV on a hire purchase agreement.

   FULL HD PLASMA 60PN6500

   Item no : 00616028
   Brand : LG

   R12,999.00
   ◦ 60 INCH FHD PLASMA
   ◦ HDMI:X2
   ◦ USB:X1
   ◦ 2 Channel speaker
   ◦ 24 month warranty

   Cash Price: R 12 999

   OR

   Hire purchase: 14% Deposit and 24 equal monthly payments to the value of R 13 191 .39

   a) Calculate how much Kim would pay for the deposit.

   b) Calculate how much Kim will have to pay every month.

   c) Calculate the total amount that Kim will pay for her new TV on the hire purchase agreement.

   d) How much interest will Kim pay for her new TV on the hire purchase agreement.

   e) Calculate the interest rate the Kim gets charged on the TV.

   f) Calculate how much Kim would pay for the TV if the hire purchase agreement kept the same interest rate but the agreement was extended to 3 years.

   g) Calculate the new monthly payments over a 3 year period.
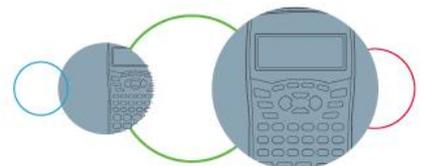
4. Tyler has just moved into a new flat so he has decided to set up a budget so he uses the information given below to help him to prepare his budget.

| Earnings	(R)	Deductions	(R)
Salary	12 000	PAYE Income Tax	?
Travel Allowance (taxable)	2 000	Bond repayment to the bank	1200
Retirement contribution by employer	612	Retirement Fund payment	612
Unemployment Insurance Fund contribution by employer	120	Unemployment Insurance Fund payment	120
Life Insurance contribution by employer	400	Life Insurance payment	600
Total Earnings	15 132	Net income	?

Statutory Rates (Individuals)	
Taxable Income (R)	**Rates of tax (R)**
0 – 165 600	18% of each R1
165 601 – 258 750	29 808 + 25% of the amount above 165 600
258 751 – 358 110	53 096 + 30% of the amount above 258 750
358 111 – 500 940	82 904 + 35% of the amount above 358 110
500 941 – 638 600	132 894 + 38% of the amount above 500 940
638 601 and above	185 205 + 40% of the amount above 638 600
Tax rebates (Individuals)	
Primary Rebate	R 12 080
Secondary rebate (for persons 65 years and older)	R 6 750
Tertiary rebate (for persons 75 years and older)	R 2 250

a) Calculate the PAYE Income Tax that Tyler owes each month.

b) Calculate Tyler's Net Income per month.

c) Calculate the total amount that Tyler will pay for his flat if he pays it off over 15 years. (NOTE: He pays the same amount every single month for the first 6 years and then his repayment goes up by 12% and stays the same until the end of the loan term.)

d) Calculate the price of the flat that Tyler bought if he is charged 8% simple interest for 15 years. Use the formula $FV = PV(1 + i \times n)$

5. The two slips on the next page represent a specific basket of items bought in May 2013 and Jan 2014. They indicate how prices for specific items change over time, called CPI. Use the slips to answer the questions that follow.
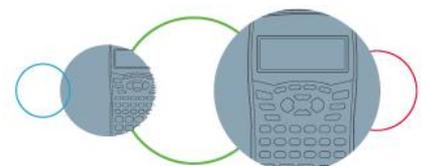
SAVE BIG SUPERMARKET	
Date: 20 Jan 2014	
2 lt cool drink	R18,37
Bread	R7,24
Mouth wash	R23,38
Shaving cream	R34,71
Milk	R14,34
Airtime	R15,09
Total:	R113,13
VAT @ 14%:	R12,82
Total Due:	R125,95
AMOUNT PAID:	R130,00
CHANGE:	R4,05

SAVE BIG SUPERMARKET	
Date: 20 May 2013	
2 lt cool drink	R14,88
Bread	R5,45
Mouth wash	R17,60
Shaving cream	R26,13
Milk	R10,79
Airtime	R11,36
Total:	R86,21
VAT @ 14%:	R9,81
Total Due:	R96,02
AMOUNT PAID:	R100,00
CHANGE:	R3,98

a) What does CPI stand for and what does it mean?

b) What is the difference in the cost of bread in May 2013 and Jan 2014?

c) Calculate the percentage increase in the price of milk from May 2013 to Jan 2014. (round off to 1 decimal place)

d) Calculate the inflation rate using the following folmula:

$$\% \, Inflation = \frac{total_{2014} - total_{2013}}{total_{2013}} \times 100$$

e) Save Big Supermarket gives their employees an 12% increase in Jan 2014, is this increase inflation linked? Give a reason for your answer.

f) Natalie spends R 2 450 on groceries every month, the CPI increases 4% but she still needs the same groceries every month. Calculate how much she will spend on groceries after the CPI increase?

6. Gizembele High School sends out a notification to the parents regarding school fees for 2011. Use the given information to answer the questions that follow.

School Fees and sundry fees for 2011 at Gizembele High School for the year

| School Fees	R 18 500 per child
Textbooks	R 2 000 per child
Excursions	R 1 000 per child (grade 10 – 12)
Uniforms	R 1 800

If fees are paid in full by 25 January 2011 the school will offer a 10% discount on the school fees.

All school fees must be payed to the school by the latest 31 October 2011.

Sibling discounts are offered as follows: 2nd child gets a 10% discount from school fees

3rd child gets a 20% discount from school fees
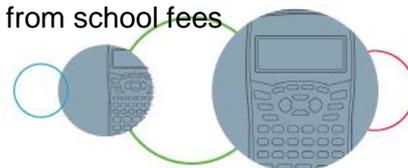
a) Mrs Maluleka has two daughters, one in grade 8 and one in grade 10. She pays her school fees on the 21st of January. Calculate how much she paid for school fees on this day.

b) Calculate the total discount that Mrs Maluleka gets from the school.

c) Calculate the total amount that Mrs Maluleka must pay for sundry fees(textbooks, excursions and uniforms) in 2011.

d) Mr Tuanyane has a son in grade 11 at Gizembele HIgh School. Calculate the total amount that he must pay for the year.

e) Mr Tuanyane decides that he wants to pay off his school fees and sundry amounts over a 10 month period (Jan – Oct), calculate how much he must pay per month.

f) Gizembele HIgh School's fees for 2012 will be increased by 8.5% and the sundry fees will increase by 6%. Calculate how much Mr Tuanyane will pay in 2012.

7. The graph below shows the percentage change in the price of a packet of chips from 2008 – 2013 with regards to the price in 2008. Use the graph below to answer the questions that follow.

Percentage change in the price of a packet of chips from Dec 2008 - Dec 2013
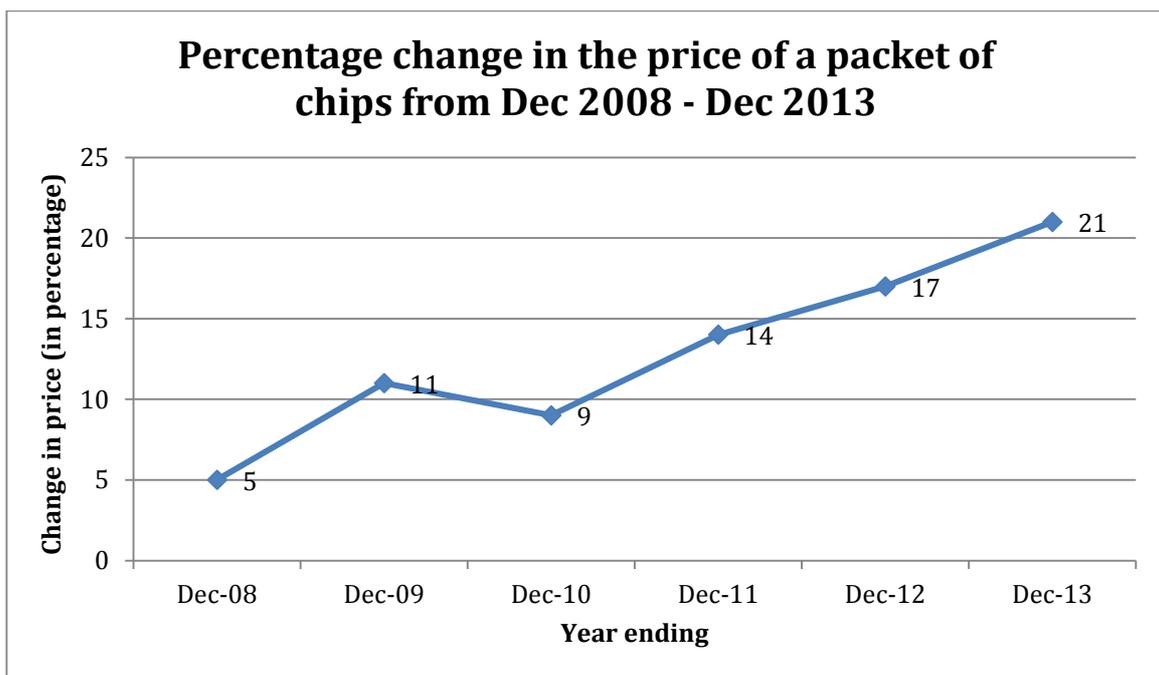
a) What was the cost of a packet of chips in December 2011 if the cost of a packet of chips is R 10.00 in January 2008.

b) In which year did the price of chips increase the most?

c) In which year did the price of chips decrease?

d) What was the total percentage increase in the price of a packet of chips between January 2008 and December 2013?

e) What is the price of three packets of chips in December 2013?