Financial Maths 2

Key Concepts

In this session, we will focus on summarising what you need to know about:
- Income, Expenses and Budgets
- Inflation

Concept: Income, Expenses and Budgets
- Income - money that an individual or business receives/earns in exchange for goods or services.
- Expenses – money spent by an individual or business.
- Budget - financial plan that shows your expected income and expenses over a certain period.
- Profit – money you are left with after deducting all expenses.
    - Profit = Income – Expenses
    - If expenses are greater than income, a loss will be incurred.
    - Loss = Expenses – Income
    - Profit margin is the percentage profit or loss.

X-ample 1

Mr. DVD sold 5 DVD players at R999 each, the cost price of each DVD player is R500.
a) Calculate Mr. DVD's income.
b) What is the total expense for the 5 DVD players sold?
c) Does Mr. DVD make a profit or loss?
d) Calculate the actual profit or loss?
e) What is the profit margin on all DVD players sold?

X-ample 2

The annual income of a small business is R250 000 and its annual profit is 36,5% of its income.
a) Calculate the annual profit.
b) Calculate the annual expenses.

X-ample 3

Lerato runs a small bakery from home. She bakes biscuits, muffins and cakes and sells them to a local bakery.
a) Calculate Lerato's income if she sells muffins at R15 per dozen, biscuits at R10 a tray and cakes at R20 each and the bakery orders: 36 muffins, 2 trays of biscuits and 4 cakes.
b) Calculate her profit/loss if it costs R10 to bake a dozen muffins, R8 per tray of biscuits and R15 to bake a cake.
c) Calculate the percent X-ample 4

Lerato's budget for 2009 is given below:
        Total Income = R40 000
        Total Expenses = R 15 000
Her actual Income and Expenses were:
        Total Income = R45 000
        Total expenses = R 21 0000

a) Was Lerato's actual profit for 2009 greater than or less than what she had budgeted for?
b) Express Lerato's budgeted profit as a % of her budgeted income.
c) Express her actual profit as a % of her actual income.(Percentage profit, to the nearest %)

Concept: Inflation
- An overall or general rise in prices
- Inflation rate measures how fast prices are rising in % terms.
- CPIX- Consumer price index- measures the monthly price changes in a representative 'basket' of consumer goods and services.
- An inflation rate of 6% p.a. means that the general price of consumer goods is now 6% higher than it was in the same month a year ago.
- The inflation rate changes from one month to the next. If the inflation rate is decreasing this means that prices are rising more slowly than they were before. It does not mean that prices are decreasing!

X-ample 5

A month's groceries for a family of 4 costs R1500 and the inflation rate is expected to be an average of 4% over the next three years. Estimate the expected price of a month's groceries for this family in 3 years time.

X-ample 6

The inflation rate in June 2003 was 6,1%. If a basket of goods cost R382,70 in June 2003, what did it cost in June 2002?

X-ample 7

Mr. Khumalo has a holiday flat in P.E. that he rented out for R2500 per month in 2003. He raises the rent every year by the same amount as the rate of inflation. If inflation was approximately 6% in 2004, 5% in 2005 and 4,8% in 2006, estimate the monthly rental for 2006.

X-ample 8

The following is taken from Kate's budget and shows her main expenses for a month.

Expense item	Amount spent each month
Rent	R 3500
Food	R 1100
Phone	R 350
Car insurance	R 600
Spending money	R 600
Other	R 800

a) What are Kate's total expected monthly expenses?
b) If all of Kate's monthly expenses increase at the average annual inflation rate of 6,9%, calculate the new amount she can expect to pay for all of these items

X-ercise

1) The zoo charges an entrance fee as shown below:

Entrant	Entrance fee per person
Adult	R 90
Pensioner	R 60
Child under 12yrs	R 20

On a particular day 200 adults, 20 pensioners and 120 children visit the zoo.

a) Calculate the income the zoo receives on this day.
b) If it costs R30 000 a day to feed the animals and maintain the zoo;
     i)   Does the zoo make a profit or loss on this day?
     ii) Determine the % profit or loss.

2) Andile works for 6 hours on the weekend at a rate of R25 per hour. He uses some of this money for going out with his friends. He is planning to go to the movies next weekend with 4 friends. His budget for this outing is shown below:

5 movie tickets	total cost R225
3 small snack packs	total cost R75
2 small snack packs	total cost R80

a) How much does Andile earn in a weekend?
b) Calculate the budgeted cost of this trip to the movies for all 5 of them together.
c) How much does 1 movie ticket cost?
d) Andile's friend has a movie club card which allows him to receive a 30% discount for one ticket. What amount will he save on his movie ticket if he uses the card?
e) Calculate the cost of each small snack pack and each large snack pack.
f) If Andile only pays for himself what are the possible amounts he can expect to pay for his trip to the movies? (hint: he can buy either a large snack pack or a small one)

3) The cricket coach of a school would like to buy cricket equipment for the school cricket team. Here is the price list:

ITEM	COST
Helmet	R350 each
Gloves	R95,50 a pair
Box of 4 cricket balls	R170 a box
Cricket pads	R135 a pair
Cricket bats size 3	R550 each
Cricket bats size 5	R750 each

a) If the coach needs 16 balls in total, how many boxes of 4 does he need to buy?
b) If the coach orders; 4 helmets, 3 pairs of gloves, 2 boxes of balls, 3 pairs of cricket pads, 2 size 3 bats and 2 size 5 bats, what is the total cost of items ordered.

c) Determine what amount of VAT at 14% will be charged on the order.
d) If a handling fee of R100 is charged on the goods bought. How much in total (incl. VAT) will the school have to pay for this order?
e) The annual budget for cricket is R10 800, what percentage of the budget was spent on equipment for this season?

4) People often get an annual salary increase similar to the inflation rate. If a man gets R6500 a month after his annual salary increase which was the same as the inflation rate of 5,4%. What did he earn per month during the previous year?

Answers

1a) Income = 18000+1200+2400 = R21 600
  b) Expenses > Income, therefore they make a loss
     Loss = R30 000 – R 21 600 = R8400
     % Loss = 8400/21600 *100 =38,9%

2a) R25 *6 = R150

  b) R225 +R75+R80 = R380
  c) R225/5= R45 each
  d) 0,3 *45= R13,50
  e) R75/3 = R25 for a small pack and R80/2 = R40 for a large pack
  f) R45 + R25 = R70   or   R45+R40= R85 these are the two possibilities.

3a) 4 boxes
  b) R 5031.50
  c) VAT = Value added tax: 14% * 5031.50 = R704.41
  d) R5031.50+R704.41+R100 = R5835.91
  e) 5835.91/10800 *100 = 54%

4) R6166.98