

Monyetla Bursary Project

Maths Literacy Grade 12

Lesson 1: Finance

Interest, loans and loan statements:

Simple interest:

Interest is calculated on the same balance for each period. Hire purchase agreements work on the simple interest principle.

1. Lisa invests R5 000 for 6 years at a simple interest of 7,5% per year. Calculate the value of her investment at the end of the 6 years.
2. Jack buys a car with a selling price of R120 000 on hire purchase. He pays a 20% deposit and takes a loan out to pay the balance. The loan amount is paid off monthly over 5 years at an interest rate of 10,5%. Calculate the total amount he pays for the car.

Compound interest:

1. R130 000 is invested with compound interest of 12% per year for three years.
 - a) Calculate the total interest earned.
 - b) Determine the value of the investment after three years.
2. Jason invests R400 000 for one-and-a-half years at 10% per year, compounded quarterly.
 - a) Determine the value of the investment after 1,5 years.
 - b) What is the total amount of interest earned?

Repayment of loans:

1. Zinzi buys a fitbit for R1 995 on hire purchase. Interest of 17% per year is charged for three years on the full amount.
 - a) What is the total amount Zinzi will pay for the fitbit?
 - b) The loan has to be paid back in equal monthly instalments. How much must Zinzi pay back each month?
 - c) What percentage, correct to one decimal place, of the total amount paid will be interest?

2. Thabitha took out a loan of R15 000 at a bank. The interest is 14,4% per year and is compounded monthly. The table contains the interest incurred, payments made and balance owed over a period of 24 months until the loan is amortised.

Month	1	2	3	4	5	6	7	8
Interest	180,00	173,48	166,89	160,22	A	146,65	139,71	132,71
Payment	723,03	723,03	723,03	723,03	723,03	723,03	723,03	723,03
Balance	14 456,97	13 709,42	13 351,28	12 788,47	B	11 642,50	11 059,18	10 468,86

Month	9	10	11	12	13	14	15	16
Interest	125,63	118,46	111,20	103,86	96,43	88,91	81,30	73,60
Payment	723,03	723,03	723,03	723,03	723,03	723,03	723,03	723,03
Balance	9 871,46	9 266,89	8 655,06	8 035,89	7 409,29	6 775,17	6 133,44	5 484,01

Month	17	18	19	20	21	22	23	24
Interest	65,81	57,92	49,94	41,86	33,69	25,42	17,05	8,57
Payment	723,03	723,03	723,03	723,03	723,03	723,03	723,03	723,03
Balance	4 826,78	4 161,67	3 488,58	2 807,41	2 118,07	1 420,46	714,48	0

- a) How long will it take to pay off the loan?
- b) Calculate the interest, **A**, to be paid at the end of the fifth month.
- c) The balance at the end of each month is calculated as follows:

$$\text{End balance} = \text{balance of previous month} + \text{interest on previous balance} - \text{payment}$$
 Calculate the balance, **B**, at the end of the fifth month.
- d) Explain why the interest is getting less each month.
- e) What is the real cost of the loan?

Taxation:

Use the given tax tables to answer the questions that follow.

RATES OF TAX: 2019/2020	
Statutory rates applicable to individuals:	
TAXABLE INCOME (R)	RATES OF TAX (R)
1 – 195 850	18% of taxable income above 195 850
195 851 – 305 850	35 253 + 26% of taxable income above 195 850
305 851 – 423 300	63 853 + 31% of taxable income above 305 850
423 301 – 555 600	100 263 + 36% of taxable income above 423 300
555 601 – 708 310	147 891 + 39% of taxable income above 555 600
708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Tax rebates applicable to individuals:	
Primary rebate	R14 067
Secondary rebate (for persons 65 years and older)	R7 713
Tertiary rebate (for persons 75 years and older)	R2 574
Tax thresholds applicable to individuals:	
Persons under 65 years	R78 150
Persons 65 years and older	R121 000
Persons 75 years and older	R135 300
Medical tax credit rates:	
For taxpayer	R310
For 1 st dependent	R310
For each additional dependent	R209

1. Jessica is a 72 year old lady who earns a monthly income of R17 650. She contributes 7,5% of her monthly income to a pension fund. This full amount is tax deductible. She also contributes to a medical aid for herself and her husband. Calculate Jessica's monthly income tax payable to SARS.

Tariff systems:

Water usage in kilolitres	Tariff* (per kilolitre)
0 to 9 kl	R0
10 to 25 kl	R9,27
26 to 30 kl	R12,36
31 to 45 kl	R19,06
More than 45 kl	R20,96

Fixed charges per month	Tariff*
0 to 9 kl	R0
Greater than 9kl	R83,43
*Tariffs exclude 15% VAT	

Calculate the cost for using 47 kl of water.

Cost price, selling price and break-even analysis:

1. Thelma needs a new cellphone. She spends R299 per month, on average, on prepaid airtime and data with her current subscriber. She is thinking of buying a new smart phone for R1 500. She sees the same phone on a 24-month contract for R775 per month, which includes R150 and 500 Mb data. She pays an additional airtime at R1,50 per minute on the contract option if she uses more than the R150.
 - a) Set up equations to illustrate the cost of her two options.
 - b) Draw two graphs on the same set of axis to illustrate her two options.
 - c) Advise Thelma on which option to choose if you are not sure how many minutes of airtime she uses each month.