



# MASENO SCHOOL

## Topic 6: Commercial Arithmetic II

By Mr. Patrick Mboya

1. A business person invested Ksh. 350,000 in a bank that pays simple interest at the rate of 10% per annum for  $1\frac{1}{2}$  years. Upon maturity, the business person reinvested the amount collected in another bank that pays compound interest at the rate of 10% per annum for 2 years. Calculate the total interest on the amount invested.
2. A man invested Ksh 240,000 in bank A at a simple interest rate of 12% p.a for 3 years and Ksh 200,000 in bank B at a simple interest rate of 14% p.a for the same duration. Which bank gave a greater return?
3. A businesswoman borrowed Ksh. 240,000 from a financial institution that charges compound interest of 12% p.a for five years. She used the money to purchase a piece of land that appreciates at the rate of 15% p.a. If she sold the piece of land after five years, determine the amount of profit she made.
4. A car was purchased in January 2010 for Ksh. 850,000 and sold in December 2014 for Ksh. 425,000. Calculate its rate of depreciation.
5. A refrigerator can be bought in cash for Ksh. 35,000. The same refrigerator can be purchased on hire purchase terms by first paying a deposit of Ksh 6,000 followed by 24 equal monthly instalments of Ksh. 1,500. Calculate the hire purchase price and the carrying charge
6. The cash price of a radio is Ksh. 52,000. Its hire purchase price is 20% more and can be settled by paying Ksh. 2,430 for 18 months plus a deposit. Calculate the amount of deposit required.
7. A mobile phone can be purchased in cash Ksh. 30,000 or by paying Ksh. 1,750 for 24 months. Calculate the rate of interest charged on instalment buying. Give your answer correct to 2 decimal places.
8. Determine the amount of interest when Ksh. 320,000 is invested in a bank that pays compound interest quarterly at the rate of 12% p.a for 3 years.
9. Rono invested a sum of money Sh. P at 24% per annum simple interest for 8 years and realised that he got the same amount as Wekesa who invested Sh. 2P for 4 years at compound interest. Calculate the rate of interest per annum Wekesa enjoyed.
10. Momanyi deposited Sh. 250,000 in a fixed account for a period of 24 months. The bank pays compound interest on quarterly basis. At the end of this period, Momanyi's account had Sh. 316,693. Determine the rate at which interest is paid per annum.
11. The cash price of a fridge is Sh. 30,000. Anne bought the fridge on hire purchase by paying a deposit of Sh. 7,500 and 14 monthly instalments of Sh. 1,875 each. Calculate the monthly rate of interest she was charged. Give your answer to 2 decimal places.
12. The cash price of a television set is Ksh. 36,000. Compound interest of 3.4366% per month is charged on the balance when the television set is bought on hire purchase terms by paying a deposit of Ksh. 8,000 and the instalments cleared in 12 months. Calculate the amount of each instalment to the nearest shilling.
13. Eliud Kipchoge is an athlete who feels that his playing career will last 5 years. To prepare for his future, he deposits Ksh 480 000 at the end of each year for 5 years in an account paying 6% compounded annually. How much will he have on deposit after 5 years?
14. Juma deposited Sh. 45 000 in a bank which paid interest at 12% p.a compounded monthly. Calculate the amount of interest after 3 years.

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15. The cash price of a fridge is Ksh. 41,400. Joe buys the fridge on hire purchase terms by paying a deposit of Ksh.15,960. Simple interest of 15% p.a is charged on the balance. If Joe pays the balance in 24 equal installments, calculate the amount of each instalment.
16. The price of a new car is Ksh.900,000. If its value depreciates at a constant rate to Ksh.450,000 in 4 years, find the annual rate of depreciation. Give your answer to one decimal place.
17. The table below shows monthly income tax rates for a certain year.

Monthly income (in KSh)	Tax rate in each shilling
0 – 11 180	10%
11 181 – 21 680	15%
21 681 – 32 230	20%
32 231 – 42 830	25%
Above 42 830	30%

In that year, a monthly personal relief of KSh. 1 280 and an insurance relief at 3% of the premium was allowed. A civil servant earns a gross salary of KSh. 40 000 and pays Ksh. 4 200 towards his medical insurance cover. Calculate the amount of tax that he pays.

18. The table below shows income tax rates in the year 2018.

<i>Monthly Income (Ksh)</i>	<i>Percentage Tax Rates</i>
<i>Up to 9680</i>	10
<i>9681 – 18800</i>	15
<i>18801 – 27920</i>	20
<i>27921 – 37040</i>	25
<i>37041 – 46160</i>	30
<i>46161 and over</i>	35

- a) Calculate the total tax payable in the first four bands.
- b) A civil servant's taxable income lies in the fifth band. She is entitled to a monthly personal tax relief of Ksh. 1058. In a certain month of the year, her net tax was Ksh. 6924. Calculate the amount of her taxable income.

19. The table below shows monthly income tax rates for a certain year.

<b>Monthly Income (Ksh)</b>	<b>Percentage Tax Rates</b>
Under 9681	10%
From 9681 but under 18801	15%
From 18801 but under 28021	20%
From 28021 but under 37141	25%
37041 and above	30%

A civil servant pays PAYE amounting to KSh. 4899. He is entitled to a monthly personal relief of Ksh. 1056 and an insurance relief at 10% of his monthly premiums. Every month, he pays Ksh. 4200 towards her education insurance policy. Calculate the amount of her taxable income.

20. The cash price of a T.V set is Ksh. 26000. Linda bought the set on hire purchase terms by paying a deposit of Ksh. 6000 and the balance by 24 equal monthly instalments of Ksh. 1045.30. Find the compound rate of interest per year.

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Answers

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|-------------------------------|-----------------|-------------------------|
| 1. 137025                     | 8. 136243.4838  | 15. 2756                |
| 2. $A = 36\%$ $B = 42\%$      | 9. 9.923% pa    | 16. 15.9%               |
| 3. 59763.721                  | 10. 12.00%      | 17. 5339.50             |
| 4. 12.94%                     | 11. 1.11% pm    | 18. Ksh 6440, Ksh 42180 |
| 5. $HP = 42000$ , $CC = 7000$ | 12. 2834        | 19. 36800               |
| 6. 18660                      | 13. 2705804.621 | 20. 12.00% pa           |
| 7. 1.55% pm                   | 14. 19384.59526 |                         |