Financial Mathematics (Tutor Worksheet)

Created By: K. Mthetho **Total Marks: 15**
Time: 1 hour **Number of Pages: 2**
May 2025

Instructions

- This sheet is compiled from past material with minor adjustments and mainly for your own practice.
- Your workings are very important and earn part marks in excel assessments.
- Label columns and make sure your work is understandable.
- Aim to learn more than you already know.
- **Note:** The mark allocations in this sheet are not a true reflection of the actual marking standard.

Good luck and do your best! Remember, the goal is to test your own understanding and identify areas that need revision.

Q1 A bank, "Vybull Banking", issues a loan which is repayable by a decreasing annuity payable annually in arrears for 25 years. The repayment at the end of the first year is R7 000 and subsequent repayments reduce by R250 each year. The repayments are calculated using a rate of interest of 8.5% per annum effective.

(a) Calculate the original amount of the loan. (4)

(b) Calculate the flat rate. (1)

[**5**]

Q2

"IMK Legacy" has taken out a loan of R750 000 repayable monthly in arrears over 30 years. The agreement stipulates that the loan is repaid by a special compound increasing annuity in arrears. The first annual repayment in year 1 is X. Then total annual repayments increase at a rate of 7% per annum up to the end of year 14, and at a rate of 10% per annum thereafter. The repayment is calculated using a rate of interest of 8% convertible quarterly.

Calculate X.

Notice how the capital components can indeed be negative! [**10**]

"Remember, preparation is the key to success! Take your time, read each question carefully, and trust in your knowledge. Good luck!"