

Financial Mathematics (Tutor Worksheet)

Created By: K. Mthetho
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Total Marks: 20
Number of Pages: 2

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 On 1 July 2025, a loan of nominal amount R9 800 000 was issued in bonds of R1 000 nominal and bearing interest at 6% per annum payable quarterly in arrears during the first 11 years and 7.5% payable half-yearly thereafter.

The loan is redeemable by drawings at the end of each year of 400 bonds per annum for the first 11 years and 600 bonds per annum thereafter.

Redemption is at 110% during the first 9 years and 113% thereafter.

The issue price is such as to give a purchaser of the entire loan who is subject to income tax at 30% for the first 8 years, at 35% thereafter and capital gains tax at 25%, a net yield of 5%.

Income tax is paid exactly a year after income has been received.

Assuming there is gain on capital, calculate the price per bond paid by the investor showing all working and labeling all information necessary.

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Note from me, for additional practice, I would suggest you have a looksie through the following IFoA paper “CM1B April 2025” question 4

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