

Monyetla Bursary Project

Gr 12

Maths Lit

Finance – Part 2

Questions

Question 1:

1. Municipal policies, with regard to free basic electricity (FBE), vary from municipality to municipality. In some municipal areas, poverty-stricken customers receive 100 kWh of free electricity as opposed to the 50 free kWh proposed by government policy. Some municipalities include FBE into their tariff structure. Study the Bergville tariff structure in the table below. Notice that this municipality includes FBE (called the 'lifeline' tariff in the table) only for those citizens who use less than 450 kWh per month and that VAT is excluded and therefore must be added onto the final bill. The 'domestic' tariff is for all households that use more than 450 kWh per month.

Domestic (>450 kWh received per month)		
Energy charge (c/kWh)	Block 1 (≤ 600 kWh)	107,43
	Block 2 (> 600 kWh)	118,06
Lifeline (<450 kWh average received)		
Energy charge (c/kWh) (Any FBE received forms part of the Block 1 receipt)	Block 1 (0 – 150 kWh)	61,60
	Block 2 (150,1 – 350 kWh)	81,04
	Block 3 (350,1 – 600 kWh)	107,43
	Block 4 (> 600 kWh)	118,06
Note: All prices exclude VAT		

- 1.1 Calculate what a household on lifeline tariff would pay for 286 kWh of electricity.
- 1.2 Represent this lifeline tariff structure as a graph. Let your independent variable be 'Electricity used per month (kWh)' and your dependent variable be 'Cost (c/kWh)'.

- 1.3 Use the tariff structure given to calculate what a household on domestic tariff structure would pay for 750 kWh of electricity in any given month.
- 1.4 If you received a bill for R850,50 on the domestic tariff structure:
 - 1.4.1 What would your bill be before VAT?
 - 1.4.2 How many kWh of electricity would you have consumed?

Question 2:

2.

<p>George is considering two different cell phone contracts from rival phone companies. Both are top-up contracts and both come with a new phone.</p> <p>Contract A: Costs R100/month. It comes with 100 minutes of airtime and 100 Mb data. Top-up data price: R0,70/Mb</p> <p>Contract B: Costs R135/month. It comes with 135 minutes of airtime. Top-up data price: R45 for 100 Mb, R67 for 200 Mb.</p> <p>George does not actually talk much on his phone and uses approximately 200 Mb per month to keep in contact with his family and his friends, because it is cheaper. If he took either of these contracts he would have to top up with data, since neither of these contracts supplies him with what he usually uses per month.</p>

- 2.1 What would it cost him to purchase the additional 100 Mbs he would need to supplement contract A?
- 2.2 What would he pay per Mb if he bought 200 Mbs to supplement contract B?
- 2.3 Given these additions to the basic contracts, what would George pay for each of these contracts in total per month if he were to take either of them?
- 2.4 George now considers another deal from a third company, which costs R99 per month and comes with 50 minutes of airtime and 50 Mbs per month. Calculate his monthly costs to supplement this contract with 150 Mbs at R0,45 per Mb.
- 2.5 Which would be the cheapest contract for George, given these restrictions?