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| **Topic 1: Number and Algebra** | **Exponential Functions** | |
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| 1. Due to Alex’s severe allergies, she takes 30 mg of a drug every day. Her doctor informs her that the amount of the drug will decrease in her bloodstream by 12% each hour.    1. Model this information in the form for the constants and that give the quantity of the drug, in milligrams, that remain in the bloodstream hours after she takes the medicine.    2. Find the amount of the drug that remains in her bloodstream after 1 day.    3. Find how long it will take for half of the drug to be out of her bloodstream. | | (2 marks)    (2 marks)  (3 marks) |
| Mark scheme:   1. A1 for the 30 and A1 for the .88 3. Solve by graphing or using logs  For example: hours | | (A1)(A1)   (M1)  (A1)  (M1)    (M1) (A1) |