Compound Decay

Give your answers to a sensible degree of accuracy.

1. A car was bought for £12 000. Its value has depreciated by 15% each year.

    How much was it worth after:

    a. 2 years £8 670   b. 5 years £5 324.46   c. 10 years? £2 362.49

2. Sheila is on a diet and has been losing 3% of her weight each month. She weighed 180 kg at the beginning of her diet.

    How much did she weigh after:

    a. 2 months 169.4 kg   b. 7 months 145.4 kg   c. 1 year? 124.9 kg

3. There are 750 bacteria in a petri dish. An antibiotic is applied and the population of bacteria starts to decrease by 1% every hour.

    If the decrease continues at this rate, how many bacteria will there be after:

    a. 5 hours 713   b. 1 day 589   c. 2 days? 463

4. In 2008, a football team had an average match day attendance of 35 000. Since then, the average attendance has been dropping by 8% every year.

    What was the average attendance in:

    a. 2010 29 624   b. 2015 19 525   c. 2017? 16 526

5. A new car cost £23 000. Its value has depreciated by 12.5% per year.

    How much was it worth after:

    a. 3 years £15 408.20   b. 6 years £10 322.29   c. 9 years? £6 915.13

6. A bee colony population is decreasing at a rate of 7% per year.

    If there are currently 34 000 bees in the colony, how many years will it take the population to drop below:

    a. 30 000 2 years   b. 25 000 5 years   c. 10 000? 17 years