Question 1

Mrs Burdock borrows £750 to buy a sofa. She is charged 6% interest per annum. (5)

If Mrs Burdock doesn’t pay back any of the money for 3 years, how much will she owe? Give your answer to the nearest penny.

Question 2

The population of fish in a lake is estimated to decrease by 8% every year. (5)

a) How many fish will be left after 15 years if the initial population is 2000?

b) How many years will it take for the population of fish to be less than \(\frac{3}{4}\) of the initial population? [2]

Question 3

A conservation company plants pine trees in a forest to increase their number by 16% each year. At the end of each year, a logging company is permitted to cut down up to 75% of the number of new trees planted that year.

At the start of 2013 there were 5000 pine trees in the forest. What was the minimum number of pine trees in the forest at the end of 2014?
Question 4

Rich inherits £10 000, and wants to invest it. His bank is offering him two accounts.

**Compound Collectors Account**
5.5% compound interest per year, paid annually into your account.
Rate is guaranteed for 5 years.

**Simple Savers Account**
6.2% simple interest paid annually by cheque.
Rate guaranteed for 5 years, no further deposits permitted after opening.

a) After 5 years, which account will give him the largest balance?

b) Why might Rich not want to invest in the Simple Savers Account?

Question 5

Mrs Khan puts £2500 into a high interest savings account. Interest is added to the account at the end of each year. After 2 years Mrs Khan’s account contains £2704.

What is the interest rate on Mrs Khan’s account?

Question 6

The value of a football player decreases at a rate of 25% each year after the age of 30. At the age of 35 a player was valued at £2 000 000.

What was the player’s value when he was 31 years old? Give your answer to the nearest £100 000.

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