Compount Interest / Depreciation Questions

Q1.

Charlie invests £1200 at 3.5% per annum compound interest.

Work out the value of Charlie's investment after 3 years.

£. . . . .

(Total for Question is 3 marks)

Q2.

Toby invested £7500 for 2 years in a savings account.
He was paid 4% per annum compound interest.

How much money did Toby have in his savings account at the end of 2 years?

£ ....

(Total for question is 2 marks)

Q3.

Liam invests £6200 for 3 years in a savings account.
He gets 2.5% per annum compound interest.

How much money will Liam have in his savings account at the end of 3 years?

£ . . . .

(Total for Question is 3 marks)

Q4.

Northern Bank has two types of account.
Both accounts pay compound interest.

Cash savings account
Interest
2.5% per annum

Shares account
Interest
3.5% per annum

Ali invests £2000 in the cash savings account.
Ben invests £1600 in the shares account.

(a) Work out who will get the most interest by the end of 3 years.

  You must show all your working.

(4)

In the 3rd year the rate of interest for the shares account is changed to 4% per annum.

(b) Does this affect who will get the most interest by the end of 3 years?

  Give a reason for your answer.

  ....

  ....

  ....

(1)

(Total for question = 5 marks)

Q5.

The population of a city increased by 5.2% for the year 2014

At the beginning of 2015 the population of the city was 1560 000

Lin assumes that the population will continue to increase at a constant rate of 5.2% each year.

(a) Use Lin's assumption to estimate the population of the city at the beginning of 2017
  Give your answer correct to 3 significant figures.

  ....

(3)

(b) (i) Use Lin's assumption to work out the year in which the population of the city will
    reach 2 000 000

  ....

(ii) If Lin's assumption about the rate of increase of the population is too low, how might this affect your answer to (b)(i)?

....

....

....

(3)

(Total for question = 6 marks)

Q6.

Becky buys a new car for £20 000

The value of this car will depreciate

      by 15% at the end of the first year
    then by 10% at the end of every year after the first year.

After how many years will the car have a value of less than £15 000?

You must show all your working.

....

(Total for Question is 4 marks)

Q7.

Danny bought a car for £10 000

The value of the car depreciated by 20% in the first year.
Then the value of the car depreciated by 10% in the second year.

Work out the value of Danny's car at the end of two years.

£ . . . .

(Total for Question is 3 marks)

Q8.

Martin bought a computer for £1200
  At the end of each year the value of the computer is depreciated by 20%.

After how many years will the value of the computer be £491.52?
  You must show your working.

....

(Total for Question is 3 marks)

Q9.

Helen invested £6000 for *n* years in a savings account.
She got 3% compound interest each year.

At the end of *n* years Helen had £7379.24 in her savings account.

Work out the value of *n*.
You must show your working.

....

(Total for question = 2 marks)

Q10.

* Peter has £20 000 to invest in a savings account for 2 years.

He finds information about two savings accounts.

Bonus Saver	Fixed Rate
Compound interest	Compound interest
4% for the first year then 1.5% each year	2.5% each year

Peter wants to have as much money as possible in his savings account at the end of 2 years.

Which of these savings accounts should he choose?

(Total for question = 4 marks)