Non-Calculator

Q1.

A sequence of numbers is formed by the iterative process $a_{n+1} = (a_n)^2 - a_n$

(a) Describe the sequence of numbers when $a_1 = 1$
Show working to justify your answer.

_____

_____

(1)

(b) Describe the sequence of numbers when $a_1 = -1$
Show working to justify your answer.

_____

_____

_____

(2)

(c) Work out the value of a_2 when $a_1 = 1 - \sqrt{2}$

_____

_____

_____

_____

Answer _____

(2)

(Total 5 marks)

Calculator

Q2.

P is the principal amount.
r is the interest rate over a given period.
n is the number of times that the interest is compounded.

Circle the expression for the total accrued using compound interest.

$P\left(1+\frac{r}{100}\right)^n$ $\quad$ $P+\left(\frac{r}{100}\right)^n$

$P\left(1+\frac{n}{100}\right)^r$ $\quad$ $P\left(1+\frac{r^n}{100}\right)$

(Total 1 mark)

Q3.

On 1st January 2012 Beth invested some money in a bank account.

The account pays 2.5% compound interest per year.
On 1st January 2013 Beth withdrew £1000 from the account.
On 1st January 2014 she had £17 466 in the account.

Work out how much money Beth originally invested in the account.

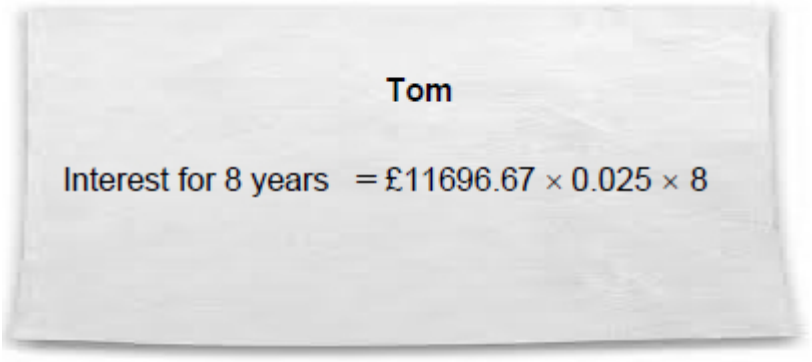
Answer £.....

(Total 4 marks)

Q4.

An amount of money was invested for 8 years.
It earned **compound** interest at 2.5% per year.
After 8 years the total value of the investment was £11 696.67

(a) Tom is trying to work out the total interest earned.



State what is wrong with Tom's method.

_____

_____

(1)

(b) Work out the total interest earned.

_____

_____

_____

_____

_____

Answer £ _____

(3)

(Total 4 marks)