# 1.4 Financial apps\_compound interest\_depreciation\_P\_1

**1a.** *[2 marks]*

## Markscheme

      ***M1A1***

***[2 marks]***

**1b.** *[3 marks]*

## Markscheme

real interest rate =            ***A1***

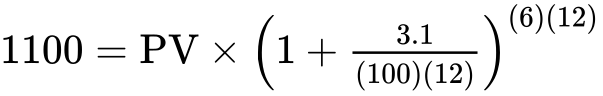
       ***M1A1***

***[3 marks]***

**2a.** *[3 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

       ***(M1)(A1)***

**Note:** Award ***(M1)*** for substitution into compound interest formula, ***(A1)*** for correct substitution.

**OR**

N = 6  
I% = 3.1  
FV = ±1100  
P/Y = 1  
C/Y = 12       ***(M1)(A1)***

**Note:** Award ***(A1)*** for C/Y = 12 seen, ***(M1)*** for other correct entries.

**OR**

N = 72  
I% = 3.1  
FV = ±1100  
P/Y = 12  
C/Y = 12       ***(M1)(A1)***)

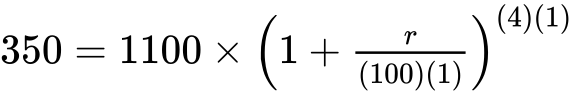
**Note:** Award ***(A1)*** for C/Y = 12 seen, ***(M1)*** for other correct entries.

($) 913.52       ***(A1) (C3)***

***[3 marks]***

**2b.** *[3 marks]*

## Markscheme

  **OR**           ***(M1)(A1)***

**Note:** Award ***(M1)*** for a substituted compound interest formula, in either form, equated to 350, ***(A1)*** for correct substitution.

**OR**

      ***(M1)(A1)***

**Note:** Award ***(M1)*** for a substituted term of a geometric sequence formula equated to 350, ***(A1)*** for correct substitution.

**OR**

N = 4  
FV = ±350  
PV = 1100  
P/Y = 1  
C/Y = 1       ***(M1)(A1)***

**Note:** Award ***(A1)*** for C/Y = 1 seen, ***(M1)*** for other correct entries.  
FV and PV must have opposite signs.

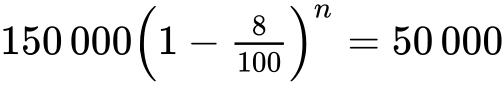
24.9 %  (24.8950…%, 0.249)       ***(A1) (C3)***

***[3 marks]***

**3a.** *[3 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

      ***(A1)(M1)***

**Note:** Award ***(A1)*** for correct substitution into compound interest formula or correct substitution into the formula for term of a geometric sequence (where *r*= 0.92), ***(M1)*** for a substituted compound interest formula equated to 50 000 or a substituted term of a geometric sequence formula equated to 50 000.

**OR**

I% = −8               ***(A1)(M1)***

PV = ±150 000

FV = 50 000

P/Y = 1

C/Y = 1

**Note:** Award ***(A1)*** for C/Y = 1 seen, ***(M1)*** for other correct entries. FV and PV must have opposite sign.

***OR***

138 000, 126 960, 116 803.20, 107 458.94, 98 862.23, …     ***(M1)***

*t* = 50 737.96, *t* = 46 678.92         ***(A1)***

**Note:** Award ***(M1)*** for a list of at least 5 correct terms beginning with 138 000, ***(A1)*** for identifying *t* and *t*.

*n* = 13.1757

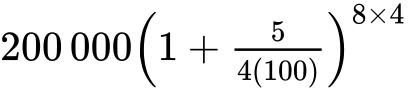
13 years      ***(A1) (C3)***

**Note:** The answer must be an integer.

***[3 marks]***

**3b.** *[3 marks]*

## Markscheme

     ***(A1)(M1)***

**Note:** Award ***(M1)***for substituted compound interest formula, ***(A1)*** for correct substitutions.

**OR**

N = 8               ***(A1)(M1)***

I% = 5

PV = ±200 000

P/Y = 1

C/Y = 4

**Note:** Award ***(A1)*** for C/Y = 4 seen, ***(M1)*** for other correct entries.

**OR**

N = 32               ***(A1)(M1)***

I% = 5

PV = ±200 000

P/Y = 1

C/Y = 4

**Note:** Award ***(A1)*** for C/Y = 4 seen,***(M1)*** for other correct entries.

= ($) 297 626.10      ***(A1) (C3)***

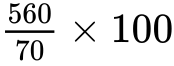
**Note:** Answer must be given correct to two decimal places.

***[3 marks]***

**4a.** *[2 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

 (or equivalent)     ***(M1)***

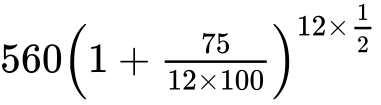
**Note:** Award ***(M1)*** for dividing 560 by 0.7 or equivalent.

     ***(A1)     (C2)***

***[2 marks]***

**4b.** *[4 marks]*

## Markscheme

     ***(M1)(A1)***

**Note:** Award ***(M1)*** for substitution into interest formula, ***(A1)*** for their correct substitution.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for all other entries correct.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for all other entries correct.

     ***(A1)***

**Note:** Award ***(A3)*** for 805.678… (806) seen without working.

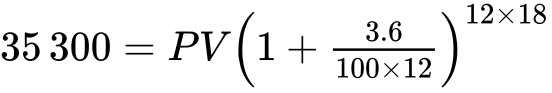
(Juan spends) 5.68 (USD) (5.67828… USD) (more than the original price)     ***(A1)*(ft) *(C4)***

***[4 marks]***

**5a.** *[3 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

     ***(M1)(A1)***

**Note:**     Accept “” instead of . Award ***(M1)*** for substitution into compound interest formula, ***(A1)*** for correct substitution.

**OR**









     ***(A1)(M1)***

**Note:**     Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

**OR**









     ***(A1)(M1)***

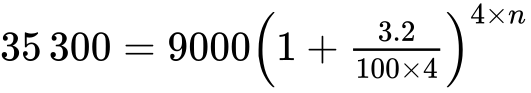
**Note:**     Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

     ***(A1)***     ***(C3)***

***[3 marks]***

**5b.** *[3 marks]*

## Markscheme

     ***(M1)(A1)***

**Note:**     Award ***(M1)*** for substitution into compound interest formula and equating to , ***(A1)*** for correct substitution.

**OR**









     ***(A1)(M1)***

**Note:**     Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

**OR**









     ***(A1)(M1)***

**Note:**     Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

     ***(A1)***     ***(C3)***

***[3 marks]***

**6a.** *[2 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

    ***(M1)***

**Note:** Award ***(M1)*** for correct substitution into .

    ***(A1)     (C2)***

**Note:** Accept  **OR** 9790 for a final answer.

***[2 marks]***

**6b.** *[2 marks]*

## Markscheme

    ***(M1)***

**Note:** Award ***(M1)*** for correct substitution into .

    ***(A1)     (C2)***

***[2 marks]***

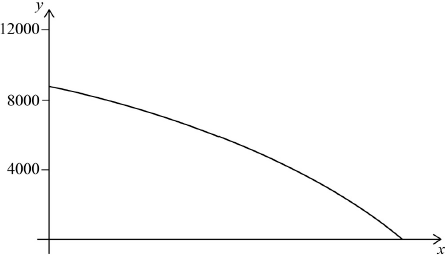
**6c.** *[2 marks]*

## Markscheme

    ***(M1)***

**Note:** Award ***(M1)*** for correct substitution into .

**OR**

     ***(M1)***

**Note:** Award ***(M1)*** for a correctly shaped curve with some indication of scale on the vertical axis.

    ***(A1)*(ft)     *(C2)***

**Note:** Follow through from part (b).

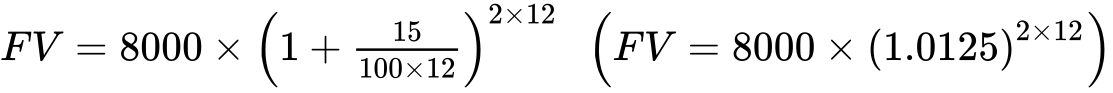
***[2 marks]***

**7a.** *[3 marks]*

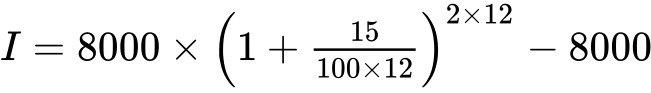
## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

**The first time an answer is not given to two decimal places the final *(A1)* is not awarded.**

       ***(M1)(A1)***

**OR**

       ***(M1)(A1)***

**Note:** Award ***(M1)*** for substitution into compound interest formula, ***(A1)*** for correct substitutions.

**OR**













            ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for **all** other correct entries.  need not be seen.

**OR**













            ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for **all** other correct entries.  need not be seen.

interest             ***(A1)    (C3)***

**Note:** Final answer must be to two decimal places for the ***(A1)*** to be awarded.

**7b.** *[3 marks]*

## Markscheme









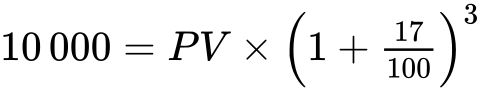




          ***(A1)(M1)***

**Note:** Award ***(A1)*** for , ***(M1)*** for **all** other correct entries.  need not be seen.

**OR**

          ***(M1)(A1)***

**Note:** Award ***(M1)*** for substituting into compound interest formula, ***(A1)*** for equating  to the correctly substituted compounded interest formula.

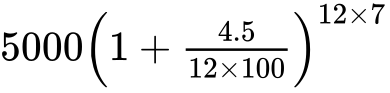
                 ***(A1)         (C3)***

**Note:** Answer must be to two decimal places.

**8a.** *[3 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

     ***(M1)(A1)***

**Note:**Award ***(M1)*** for substitution into compound interest formula, ***(A1)*** for correct substitutions.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

**OR**









     ***(A1)(M1)***

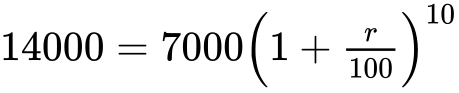
**Note:** Award ***(A1)*** for  seen, ***(M1)*** for all other correct entries.

     ***(A1)     (C3)***

**Note:** Answer must be correct to 2 decimal places for the final ***(A1)*** to be awarded.

**8b.** *[3 marks]*

## Markscheme

     ***(M1)(A1)***

**Notes:** Award ***(M1)*** for substitution into compound interest formula equated to 14000 or equivalent.

Award ***(A1)*** for correct substitutions.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for other correct entries.  and must have opposite signs.

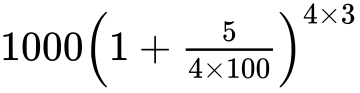
     ***(A1)     (C3)***

**Note:**Do not penalize if  sign is missing. Do not accept .

**9a.** *[3 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

     ***(M1)(A1)***

**Note:** Award ***(M1)*** for substitution into compound interest formula, ***(A1)*** for correct substitution.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for other correct entries.

**OR**









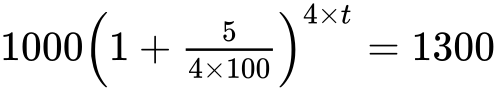
     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for other correct entries.

 (€)    ***(A1)     (C3)***

**9b.** *[3 marks]*

## Markscheme

     ***(M1)(A1)***

**Note:**Award ***(M1)*** for using the compound interest formula with a variable for time, ***(A1)*** for substituting correct values and equating to .

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for 1300 seen, ***(M1)*** for the other correct entries.

**OR**







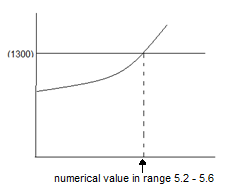


     ***(A1)(M1)***

**Note:** Award ***(A1)*** for 1300 seen, ***(M1)*** for the other correct entries.

**OR**

Sketch drawn of two appropriate lines which intersect at a point



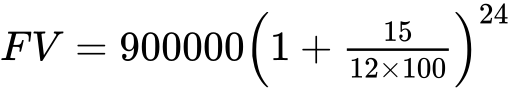
**Note:** Award ***(M1)*** for a sketch with a straight line intercepted by appropriate curve, ***(A1)*** for a numerical answer in the range .

     ***(A1) (C3)***

**10a.** *[4 marks]*

## Markscheme

\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

     ***(M1)(A1)***

**Note:** Award ***(M1)*** for substitution in the compound interest formula (either or interest), do not penalize if  not seen.

Award ***(A1)*** for correct substitution.

**OR**









     ***(A1)(M1)***

**Note:** Award ***(A1)*** for  seen, ***(M1)*** for other correct entries.

**OR**









     ***(A1)(M1)***

**Note:**Award ***(A1)*** for  seen, ***(M1)*** for other correct entries.

     ***(A1)***

     ***(A1)*(ft)     *(C4)***

**Notes:** Award the final ***(A1)*** for the correct rounding of their unrounded answer.

If final amount is  and working is shown award ***(M1)(A1)(A0)(A1)*(ft)***.*

Award ***(A2)*** for  if no working is seen.

**10b.** *[2 marks]*

## Markscheme

     ***(A1)*(ft)*(A1)*(ft)     *(C2)***

**Notes:** Award ***(A1)*(ft)** for their  , ***(A1)*(ft)** for .

Follow through from part (a).

**11a.** *[1 mark]*

## Markscheme

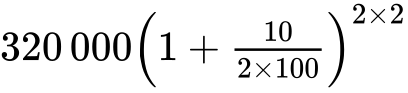
\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

4     ***(A1)     (C1)***

***[1 mark]***

**11b.** *[3 marks]*

## Markscheme

     ***(M1)(A1)***

**Note:**Award ***(M1)*** for substituted compound interest formula, ***(A1)*** for correct substitutions.

**OR**









     ***(A1)(M1)***

**Note:**Award ***(A1)*** for  seen, ***(M1)*** for correctly substituted values from the question into the finance application.

**OR**









     ***(A1)(M1)***

**Note:**Award ***(A1)*** for  seen, ***(M1)*** for correctly substituted values from the question into the finance application.

amount to repay      ***(A1)     (C3)***

**Note:**Award ***(C2)*** for final answer  if  not seen previously.

***[3 marks]***

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