# 1.3 Geometric Sequence and series\_P\_1

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

## Markscheme

*w*      ***(A1) (C1)***

***[1 mark]***

**1b.** *[1 mark]*

## Markscheme

*u*      ***(A1) (C1)***

***[1 mark]***

**1c.** *[2 marks]*

## Markscheme

10 (2)      ***(M1)***

**Note:** Award ***(M1)*** for correct substitutions into geometric sequence formula.

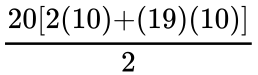
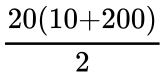
= 10 240      ***(A1)*(ft) *(C2)***

**Note:** Exact answer only. Accuracy rules do not apply in this question part; do not accept the 3 sf answer of 10 200.

***[2 marks]***

**1d.** *[2 marks]*

## Markscheme

  **OR**       ***(M1)***

**Note:** Award ***(M1)*** for correct substitutions into arithmetic series formula.

= 2100      ***(A1)*(ft) *(C2)***

***[2 marks]***

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

## Markscheme

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

54 × (0.94)     ***(M1)(A1)***

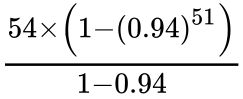
**Note:** Award ***(M1)*** for substitution into geometric sequence formula, ***(A1)*** for correct substitution.

2.45 (cm) (2.44785… cm)      ***(A1) (C3)***

***[3 marks]***

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

## Markscheme

 (or equivalent)     ***(M1)(A1)*(ft)**

**Note:** Award ***(M1)*** for substitution into geometric series formula, ***(A1)*(ft)** for correct substitution using their common ratio from part (a).

= 862 (cm)  (861.650…(cm))    ***(A1)*(ft) *(C3)***

***[3 marks]***

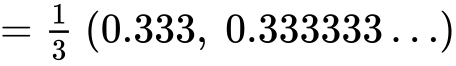
**3a.** *[2 marks]*

## Markscheme

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

**OR**     ***(M1)***

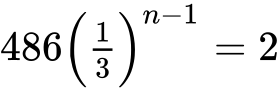
**Note:**     Award ***(M1)*** for dividing any  by .

     ***(A1)***     ***(C2)***

***[2 marks]***

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

## Markscheme

     ***(M1)***

**Note:**     Award ***(M1)*** for their correct substitution into geometric sequence formula.

     ***(A1)*(ft)**     ***(C2)***

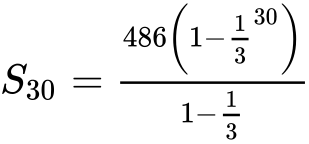
**Note:**     Follow through from part (a).

Award ***(A1)(A0)*** for  or  with or without working.

***[2 marks]***

**3c.** *[2 marks]*

## Markscheme

     ***(M1)***

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

     ***(A1)*(ft)**     ***(C2)***

***[2 marks]***

**4a.** *[1 mark]*

## Markscheme

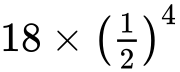
\* This question is from an exam for a previous syllabus, and may contain minor differences in marking or structure.

     ***(A1)***     ***(C1)***

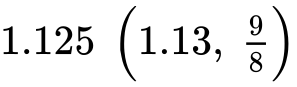
***[1 mark]***

**4b.** *[2 marks]*

## Markscheme

     ***(M1)***

**Note:**     Award ***(M1)*** for their correct substitution into the geometric sequence formula. Accept a list of their five correct terms.

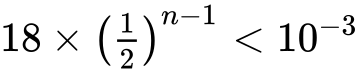
     ***(A1)*(ft)**     ***(C2)***

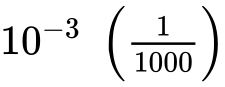
**Note:**     Follow through from their common ratio from part (a).

***[2 marks]***

**4c.** *[3 marks]*

## Markscheme

     ***(M1)(M1)***

**Notes:**     Award ***(M1)*** for their correct substitution into the geometric sequence formula with a variable in the exponent, ***(M1)*** for comparing their expression with .

Accept an equation.

     ***(A1)*(ft)**     ***(C3)***

**Note:**     Follow through from their common ratio from part (a). “” must be a positive integer for the ***(A1)*** to be awarded.

***[3 marks]***

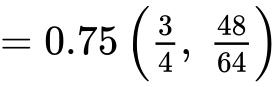
**5a.** *[2 marks]*

## 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 geometric sequence formula.

    ***(A1)     (C2)***

***[2 marks]***

**5b.** *[2 marks]*

## Markscheme

    ***(M1)***

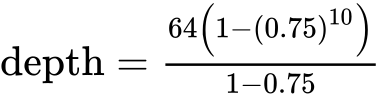
**Note:** Award ***(M1)*** for correct substitution into geometric sequence formula or list of eight values using their . Follow through from part (a), only if answer is positive.

     ***(A1)*(ft)     *(C2)***

***[2 marks]***

**5c.** *[2 marks]*

## Markscheme

    ***(M1)***

**Note:** Award ***(M1)*** for correct substitution into geometric series formula. Follow through from part (a), only if answer is positive.

    ***(A1)*(ft)     *(C2)***

***[2 marks]***

**6.** *[3 marks]*

## Markscheme

**OR**     ***(M1)(A1)*(ft)**

**Note:** Award ***(M1)*** for substituted geometric sequence formula, ***(A1)*(ft)** for their correct substitutions.

**OR**

     ***(M1)(A1)*(ft)**

**Note:**Award ***(M1)*** for a list of at least 5 consecutive terms of a geometric sequence, ***(A1)*(ft)** for terms corresponding to their answers in part (a).

     ***(A1)*(ft)     *(C3)***

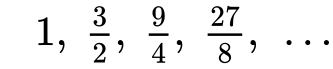
**Note:** Follow through from part (a).

**7a.** *[2 marks]*

## Markscheme

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

(i)     **OR**     ***(A1)     (C1)***

(ii)     **OR**     ***(A1)     (C1)***

**7b.** *[1 mark]*

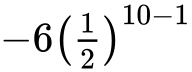
## Markscheme

**OR**     ***(A1)     (C1)***

**Note:** Accept ‘divide by 2’ for ***(A1)****.*

**7c.** *[3 marks]*

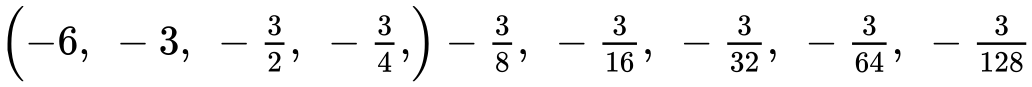
## Markscheme

     ***(M1)(A1)*(ft)**

**Notes:** Award ***(M1)*** for substitution in the GP  term formula, ***(A1)*(ft)** for their correct substitution.

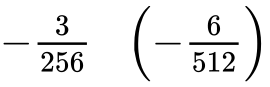
Follow through from their common ratio in part (b)(i).

**OR**

     ***(M1)(A1)*(ft)**

**Notes:**Award ***(M1)*** for terms 5 and 6 correct (using their ratio).

Award ***(A1)*(ft)** for terms 7, 8 and 9 correct (using their ratio).

     ***(A1)*(ft)     *(C3)***

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