

(2) The sum of the first 5 terms of geometric series with common ratio 1.5 is 26.375. Use the formula book to find the first term a.

(3) 8, 6.4, 5.12.....2.62144 is a geometric series.

- (a) Find the number of terms in the series.
- (b) Find the sum of the terms in the geometric series

WORKING AT B/C

(1) A geometric series has 4^{th} term 8.64 and 7^{th} term 14.92992.

(a) Find the first term *a*

(b) Find the common ratio r

(c) Hence, find the sum of the first 7 terms to 3 significant figures.

(2) A geometric series has first term 2 and common ratio 1.8. Given that the sum of the first n terms of the series exceeds 25,

(a) Using the formula book, show that 1.8ⁿ > 11
(b) Hence, find the smallest possible value of n

WORKING AT A*/A

(1) A series u_n is given by $u_n = (a \times 2^{n-1}) + 4n$ where *a* is a positive constant.

Given that $S_{20} = 1678560$, find the value of *a*

(2) Prove that the sum of the first n terms of a geometric series with first term a and ratio r is

 $S_n = \frac{a(1-r^n)}{1-r}$

(3) The first 3 terms of a geometric series are

k, k + 4 and 3k + 4....

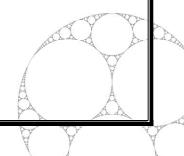
where k is a positive constant.

(a) Show that $k^2 - 2k - 8 = 0$

(b) Hence, find the value of k

(c) Find the sum of the first 10 terms of the series.

(3) Prove that the sum of a geometric series with first term 4 and ratio 0.4 cannot exceed 7.



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