

Assignment #2

Sequences + Series

Name _____

Per. _____

① Consider the geometric sequence: 2, 6, 18, 54, ...

a) What is the common ratio? _____ b) List the next 3 terms _____

c) Calculate the 30th term (show work)
...using IB notation

d) Find the sum of the first 10 terms, showing IB notation.

② Find the n^{th} term formula, U_n , for each sequence below

a) 7, 14, 28, ...

b) 80, 86, 92, 98, ...

c) 80, 40, 20, ...

d) 5, -10, 20, -40, ...

③ Find the sum of each sequence (showing work, etc.) of the first 11 terms.

a) 2000, 500, 125, ...

b) 10, 6, 2, -2, ...

④ A geometric sequence has $u_1 = 8$ and $u_4 = 216$. What is the common ratio? (show work)

and find the general term, u_n .

and find S_7

⑤ Find the sum of each series (show details for all steps)

(a) $10 + 7 + 4 + \dots - 50$

(b) $\frac{1}{4} + \frac{1}{2} + 1 + \dots + 64$

⑥ Find K given that a geometric sequence has consecutive terms of

$$4, K, K^2 - 1$$

⑦ The figure shows two adjacent triangular fields ABC and ACD where $AD = 30$ m, $CD = 80$ m, $BC = 50$ m, $m\angle ADC = 60^\circ$ and $m\angle BAC = 30^\circ$

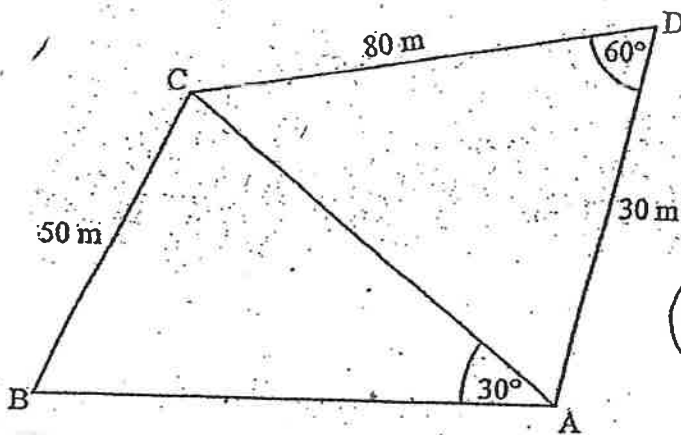


diagram not to scale

(a) Using $\triangle ACD$ calculate AC

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(b) then calculate $m\angle ABC$

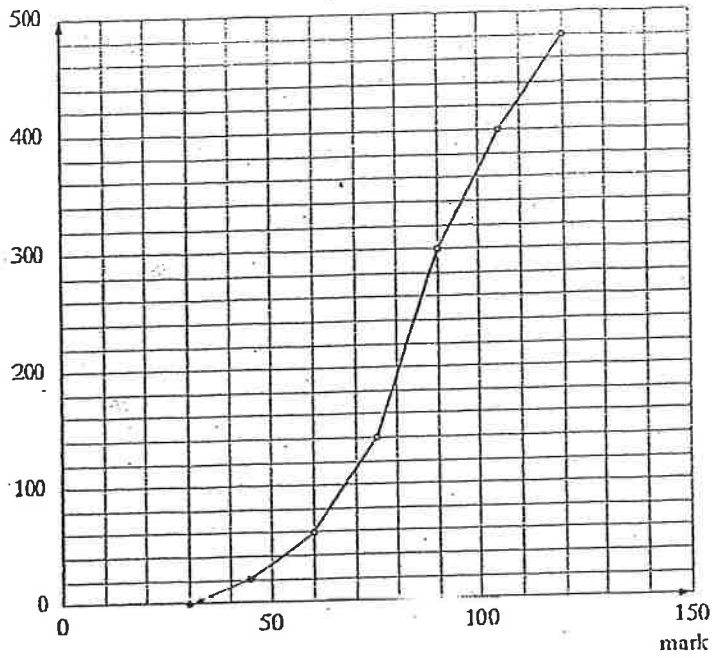
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(c) calculate the area of the field ACD

8

The cumulative frequency graph below displays the marks scored by year 12 students from a cluster of schools in a common trial mathematics exam.

Trial mathematics exam



Find:

- a how many students sat for the examination
- b the probable maximum possible mark for the exam
- c the median mark