



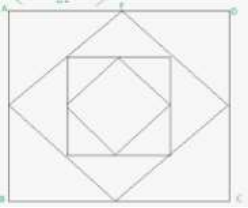
Std. XI

INDIAN SCHOOL AL WADI AL KABIR

Mathematics work sheet

Sequences and Series

18-10-2023

1.	Find nth term of the series: $3.2 + 4.4 + 5.8 + \dots$	ANSWERS $(n+2)(2n)$
2.	Find x if 27, x and 243 are in GP	$\pm 81$
3.	How many three digit numbers are divisible by 11?	81
4.	If AM and GM of two positive numbers are 8 and $4\sqrt{3}$ then find the numbers.	4 and 12
5.	Find sum of first 10 terms GP: 1, 2, 4, 8,...	1023
6.	Evaluate: $3^{1+\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\dots}$	9
7.	How many terms of the series $33^2 + 3^3 + \dots$ to be added to get 120.	4
8.	There are four numbers such that the first three are in AP and the last three are in GP. The sum of the first and third is 2 and that of second and the fourth is 26. Find the numbers	-3, 1, 5, 25 OR 7, 1, -5, 25 CBQ
9.	If one geometric mean p and two arithmetic means q and r are inserted between two positive numbers, then prove that $(2q - r)(2r - q) = p^2$	CBQ
10.	 <p><b>Case study based:</b> A square is drawn by joining the midpoints of the sides of the sides of a square. A third square is drawn inside the second square in the same way and the process is continued indefinitely. If the side of the first square is 10 cm</p> <ol style="list-style-type: none"> <li>Write the sides of squares as a sequence</li> <li>Is the sequence form a GP? Why?</li> <li>Find the sum of areas of all the squares so formed.</li> </ol>	200 sq cm
11.	If the sum of three consecutive terms in a G P is 13 and their product is 27, find the numbers	1, 3, 9 OR 9, 3, 1
12.	Three Numbers are in AP and their sum is 15, If 1, 3, 9 be added to them respectively, they form a G P. Find the numbers.	3, 5, 7 OR 15, 5, -5
13.	If a, b, c are in GP and $a^{\frac{1}{x}} = b^{\frac{1}{y}} = c^{\frac{1}{z}}$ , then show that x, y and z are in AP.	CBQ
14.	If sum of an infinite GP is 5 and each term is three times the sum of the succeeding terms. Find the GP	$\frac{15}{4}, \frac{15}{16} \dots$
15.	Let $x = 1 + a + a^2 + \dots$ and $y = 1 + b + b^2 + \dots$ where $ a $ and $ b  < 1$ . Prove that $1 + ab + a^2b^2 + \dots = \frac{xy}{x+y-1}$	CBQ

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