



# INDIAN SCHOOL AL WADI AL KABIR

Department of Mathematics, 2020-2021  
Chapter -9 – Sequences & series

CLASS: XI

24-06-2020

<b>Q.1.</b>	If the sum of $n$ terms of an A.P. is given by $S_n = 3n + 2n^2$ , then the common difference of the A.P. is							
A	3	B	2	C	6	D	4	
<b>Q.2.</b>	If 9 times the 9 <sup>th</sup> term of an A.P. is equal to 13 times the 13 <sup>th</sup> term, then the 22 <sup>nd</sup> term of the A.P. is							
A	0	B	22	C	220	D	198	
<b>Q.3.</b>	If in an A.P., $S_n = qn^2$ and $S_m = qm^2$ , where $S_r$ denotes the sum of $r$ terms of the A.P., then $S_q$ equals							
A	$\frac{q^3}{2}$	B	$mnq$	C	$q^3$	D	$(m+n)q^2$	
<b>Q.4.</b>	If $S_n$ denotes the sum of first $n$ terms of an A.P. and $\frac{S_{3n} - S_{n-1}}{S_{2n} - S_{2n-1}} = 31$ , then the value of $n$ is							
A	30	B	15	C	31	D	16	
<b>Q.5.</b>	If $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are in A.P., then .....							
A	$a^2, b^2, c^2$ are in A.P.	B	$a, b, c$ are in A.P.	C	$\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in A.P.	D	$\frac{1}{a^2}, \frac{1}{b^2}, \frac{1}{c^2}$ are in A.P.	
<b>Q.6.</b>	If the $n$ th terms of two series $3 + 10 + 17 + \dots$ and $63 + 65 + 67 + \dots$ are equal, then $n = \dots$							
A	10	B	12	C	13	D	11	
<b>Q.7.</b>	If the interior angles of a convex polygon are in A.P. with the smallest angle measuring 120 (in degrees) and the common difference between measures of angles being 5, then the polygon will have ..... sides.							
A	9, 16	B	16	C	10	D	9	
<b>Q.8.</b>	If $a_1, a_2, a_3, \dots$ are in A.P., and $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 240$ , then the sum of the first 24 terms will be .....							
A	950	B	860	C	900	D	960	

Q.9.	In an A.P., if the first term is $m$ , the last term is $p$ and the sum of the first $n$ terms is $S$ , then its common difference is .....						
A	$\frac{p+m}{2S}$	B	$\frac{m^2-p^2}{2S-m+p}$	C	$\frac{p^2-m^2}{2S-(m+p)}$	D	$\frac{p^2+m^2}{2S+(m+p)}$
Q.10	If the sum of the first $n$ terms of an A.P. is $n^2$ , then the difference between two consecutive terms of that A.P. is .....						
A	1	B	2	C	4	D	6
Q.11	If the equation $(x + 1) + (x + 4) + (x + 7) + \dots + (x + 34) = 216$ represents the sum of the first $n$ terms of an A.P., then $x = \dots$						
Q12.	The difference between two consecutive roots of the equation $x^3 - 6x^2 + 11x - 6 = 0$ is .....						
Q13.	In an increasing A.P., the sum of three consecutive terms is 51 and the product of first and third terms is 273. Its third term is .....						
Q14.	If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is the A.M between $a$ and $b$ , then find the value of $n$ .						
Q15.	Find the sum of 32 terms of an A.P. whose third term is 1 and the 6 <sup>th</sup> term is 11.						
Q16.	Determine the common difference of an A.P. whose sum of $n$ terms is $an^2 + bn$ .						
Q17.	Solve the equation:- $1 + 6 + 11 + 16 + \dots = 148$						
Q18.	If ratio of the sum of $p$ -terms and $q$ -terms of an A.P. is $p^2 : q^2$ . Prove that the common difference is twice the first term:-						
Q19.	Find the sum to $n$ terms of the A.P., whose $k^{\text{th}}$ term is $5k + 1$ .						
Q20.	Find the sum of odd integer from 1 to 21.						
Q21.	A man saved Rs. 66000 in 20 years. In each succeeding year after the first year, he saved Rs. 200 more than what he saved in the previous year. How much did he save in the first year?						
Q22.	The first term of an A.P. is $a$ and the sum of the first $p$ terms is zero, show that the sum of its next $q$ terms is $\frac{-a(p+q)q}{p-1}$						
Q23.	A man accepts a position with an initial salary of Rs. 5200 per month. It is understood that he will receive an automatic increase of Rs. 320 in the very next month and each month thereafter. (i) Find his salary for the tenth month. (ii) What is his total earning during the first year?						

<b>Q24.</b>	A carpenter was hired to build 192 window frames. The first day he made five frames and each day, thereafter he made two more frames than he made the day before. How many days did it take him to finish the job?
<b>Q25.</b>	The sum of interior angles of a triangle is $180^\circ$ . Show that the sum of the interior angles of polygons with 3, 4, 5, 6, ... sides form an arithmetic progression. Find the sum of the interior angles for a 21-sided polygon.
<b>Q26.</b>	In a cricket tournament 16 school teams participated. A sum of Rs. 8000 is to be awarded among themselves as prize money. If the last placed team is awarded Rs. 275 in prize money and the award increases by the same amount for successive finishing places, how much amount will the first-place team receive?
<b>Q27.</b>	If 9 times the 9th term of an A.P. is equal to 13 times the 13th term, then the 22nd term of the A.P. is
<b>Q28.</b>	If $a_1, a_2, a_3, \dots, a_n$ are in A.P., where $a_i > 0$ for all $i$ , show that $\frac{1}{\sqrt{a_1} + \sqrt{a_2}} + \frac{1}{\sqrt{a_2} + \sqrt{a_3}} + \dots + \frac{1}{\sqrt{a_{n-1}} + \sqrt{a_n}} = \frac{n-1}{\sqrt{a_1} + \sqrt{a_n}}$
<b>Q29.</b>	Let $S_n$ denote the sum of the first $n$ terms of an A.P. If $S_{2n} = 3S_n$ , then $S_{3n} : S_n$ is equal to
<b>Q30.</b>	The Sum of the first four terms of an A.P. is 56. The Sum of the last four term is 112. If its first term is 11, then find the no. of terms.

Answers	<b>1</b>	D	<b>2</b>	A	<b>3.</b>	C	<b>4</b>	B
	<b>5</b>	A	<b>6</b>	C	<b>7</b>	D	<b>8</b>	D
	<b>9</b>	C	<b>10</b>	B	<b>11</b>	1/2	<b>12</b>	1
	<b>13</b>	21	<b>14</b>	1	<b>15</b>	1472	<b>16</b>	2a
	<b>17</b>	$N = 8$	<b>18</b>	To prove	<b>19</b>	$n/2(7 + 5n)$	<b>20</b>	121
	<b>21</b>	1400	<b>22</b>	To prove	<b>23</b>	Rs.8080, Rs.83520	<b>24</b>	12
	<b>25</b>	$3420^0$	<b>26</b>	Rs. 725	<b>27</b>	0	<b>28</b>	To prove
	<b>29</b>	6	<b>30</b>	11				