

- 1) Find the 9th term from the end (towards the first term) of the A.P. 5, 9, 13, ..., 185. (153)
- 2) Which term of the progression 201, 192, 183, 174 ... is the first negative term? (24)
- 3) Find the number of all three-digit natural numbers which are divisible by 9. (100)
- 4) Find the middle term of the A.P. 6, 13, 20, ..., 216. (111)
- 5) In an AP, if $S_5 + S_7 = 167$ and $S_{10} = 235$, then find the AP, where s , denotes the sum of its first n terms. (1, 6, 11, ...)
- 6) Which term of the A.P. 3, 14, 25, 36, ... will be 99 more than its 25th term? (34)
- 7) If the seventh term of an AP is $1/9$ and its ninth term is $1/7$, find its 63rd term. (1)
- 8) The sum of first n terms of an AP is $3n^2 + 4n$. Find the 25th term of this AP. (151)
- 9) If S_n denotes the sum of first n terms of an A.P., prove that $S_{30} = 3[S_{20} - S_{10}]$.
- 10) If the ratio of the sum of first n terms of two A.P.s is $(7n + 1) : (4n + 27)$, find the ratio of their m^{th} terms. $(14m - 6 : 8m + 23)$
- 11) If p^{th} , q^{th} and r^{th} terms of an A.P. are a , b , c respectively, then show that $(a - b)r + (b - c)p + (c - a)q = 0$.
- 12) In an AP of 50 terms, the sum of first 10 terms is 210 and the sum of its last 15 terms is 2565. Find the AP. (3, 7, 11, ...)
- 13) The houses in a row are numbered consecutively from 1 to 49. Show that there exists a value of X such that sum of numbers of houses preceding the house numbered X is equal to sum of the numbers of houses following X . (35)
- 14) In $\triangle ABC$, $DE \parallel BC$, find the value of x from fig 1.
- 15) In the figure 2 ABC and DBC are two right triangles. Prove that $AP \times PC = BP \times PD$

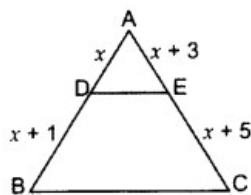


Fig 1

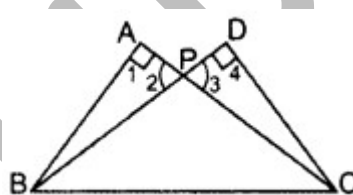


fig 2

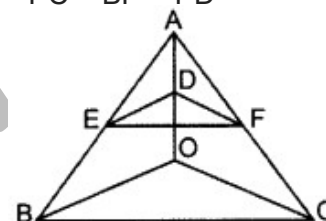


fig 3

- 16) In the figure 3, if $DE \parallel OB$ and $EF \parallel BC$, then prove that $DF \parallel OC$.
- 17) $\triangle ABC \sim \triangle PQR$. AD is the median to BC and PM is the median to QR . Prove that $AB/PQ = AD/PM$.
- 18) The diagonals of a quadrilateral $ABCD$ intersect each other at the point O such that $AO/BO = CO/DO$. Show that $ABCD$ is a trapezium.
- 19) If sides AB , BC and median AD of $\triangle ABC$ are proportional to the corresponding sides PQ , QR and median PM of $\triangle PQR$, show that $\triangle ABC \sim \triangle PQR$.
- 20) State and prove BPT.
- 21) In which quadrant the point P that divides the line segment joining the points $A(2, -5)$ and $B(5, 2)$ in the ratio $2 : 3$ lies? (iv)
- 22) Find a relation between x and y such that the point $P(x, y)$ is equidistant from the points $A(2, 5)$ and $B(-3, 7)$.
- 23) Find the ratio in which y -axis divides the line segment joining the points $A(5, -6)$, and $B(-1, -4)$. Also find the coordinates of the point of division.
- 24) Three vertices of a parallelogram taken in order are $(-1, 0)$, $(3, 1)$ and $(2, 2)$ respectively. Find the coordinates of fourth vertex. $(-2, 1)$
- 25) Determine the ratio in which the line $3x + y - 9 = 0$ divides the segment joining the points $(1, 3)$ and $(2, 7)$.
- 26) The point $A(3, y)$ is equidistant from the points $P(6, 5)$ and $Q(0, -3)$. Find the value of y . (1)

GAURAV