

RATHANS VIDYALAYA

ENTRANCE EXAM FOR STD-X

MATHEMATICS

Total - 25

SECTION - A -  $3 \times 3 = 9$

- ① Prove that, if diagonals of a quadrilateral bisect each other, then it is a parallelogram.
- ② Find the radius of a sphere whose surface area is  $154 \text{ cm}^2$ .
- ③ If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

SECTION - B.  $4 \times 4 = 16$

- ④ Show that the line segment joining the mid-point of the opposite sides of a quadrilateral bisect each other.
- ⑤ P and Q are two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that,  $\text{ar}(\triangle APB) = \text{ar}(\triangle BQC)$ .
- ⑥ ABCD is a cyclic quadrilateral whose diagonals intersect at a point E. If  $\angle DBC = 70^\circ$ ,  $\angle BAC = 30^\circ$ , find  $\angle BCD$ .
- ⑦ Curved Surface area of a cone is  $308 \text{ cm}^2$  and its slant height is  $14 \text{ cm}$ . Find: ① radius of the base and ② total surface area of the cone.

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