

# ELITES GRID

GEOMETRY ASSIGNMENT5 (TRAPEZIUM )

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1. The length of the line joining the midpoints of the non-parallel sides of an isosceles trapezium is 24. If the aforementioned line divides the trapezium in two parts with the areas in ratio 7 : 9, then what is the absolute difference (in cm) between the parallel sides of the trapezium?
2. For a trapezium,  $S_1$  denotes the sum of the squares of the sides and  $S_2$  denotes the sum of the squares of the diagonals.  $S_1 - S_2 = 576$ . If the longer parallel side is 50 cm, the shorter parallel side is
3. In a trapezium ABCD,  $AB \parallel CD$ ,  $AB = 2010$  cm,  $CD = 1000$  cm,  $\angle DAB = 40^\circ$  and  $\angle ABC = 50^\circ$ . What is the length of the line joining the midpoints of AB and CD?
4. The non-parallel sides of a trapezium of perimeter 34 cm are equal. The line segment joining the mid-points of the non-parallel sides is 12 cm. If the ratio of the area of the trapezium above this line to the area of the trapezium below this line is 7:9, what is the area of the trapezium?
5. In a trapezium PQRS, PQ is parallel to RS,  $PQ = 20$  cm,  $RS = 3$  cm,  $\angle PQR = 30^\circ$  and  $\angle QPS = 60^\circ$ . What is the length of the line joining the midpoints of PQ and RS?
6. An equilateral triangle PQR of side 25 cm is divided into 2 parts such that one of them is an equilateral triangle containing one of the vertices of the original triangle and the other remaining part is a trapezium. What is the perimeter of the parallelogram formed when two such trapeziums are placed together?



7. In a trapezium ABCD,  $AD \parallel BC$ ,  $\angle DAB$  and  $\angle ADC$  are acute angles. If AB and DC are extended to intersect at E and then perpendicular from E is drawn to AD. The perpendicular gets bisected by BC. If  $AB = 8$  cm and  $AD = 10$  cm, then what is the value of  $2AC^2 + BD^2$ ?

8. In triangle ABC, two lines DE and FG are drawn parallel to BC such that they divide AC in the ratio 2:3:5. Find the ratio of area of triangle ABC to area of the trapezium DEGF.



# **ANSWER KEYS**

**BEFORE CHECKING ANSWER KEYS – TRY QUESTIONS ATLEAST 2-3 TIMES**

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- 1) 12
- 2) 26
- 3) 505
- 4) 48
- 5) 8.5
- 6) 100
- 7) 342
- 8) 100:21