**RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1:** RS Aggarwal Solutions for Class 8 Maths for Chapter 18 on "Area of a Trapezium and a Polygon" (Exercise 18.1) provide comprehensive assistance to students in mastering the concepts related to the area calculation of trapeziums and various polygons. This exercise focuses on practical problems where students learn to apply the formulae for finding areas based on given dimensions.

The solutions are designed to offer step-by-step guidance, helping students understand the method of calculating areas effectively and building their problem-solving skills. By working through these solutions students can gain confidence in tackling similar problems in exams.

# RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 Area Of A Trapezium And A Polygon Overview

RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1, on Area of a Trapezium and a Polygon is prepared by subject experts from Physics Wallah. This exercise provides a thorough understanding of how to calculate the areas of trapeziums and various polygons.

By following these expert-prepared solutions, students can efficiently solve exercise problems and build a solid foundation in geometry.

# RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 PDF

The PDF link for RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 is available below.

By referring to this PDF students can enhance their understanding and improve their problem-solving skills in geometry.

**RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 PDF**

# RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 (Ex 18A)

Below we have provided RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1 Area Of A Trapezium And A Polygon-

**(Question 1) Find the area of a trapezium whose parallel sides are 24 cm and 20 cm and the distance between them is 15 cm.**

Solution: Area of the trap. $= \left\{ \frac{1}{2} \times (24 + 20) \times 15 \right\}$

$$= \left\{ \frac{1}{2} \times 44 \times 15 \right\} = 22 \times 15 = 330 \ cm^2$$

**(Question 2) Find the area of a trapezium whose parallel sides are 38.7 cm and 22.3 cm, and the distance between them is 16 cm.**

Solution: Area of the trap. $= \left\{ \frac{1}{2} \times (38.7 + 22.3) \times 16 \right\}$

$$= \left\{ \frac{1}{2} \times 61 \times 16 \right\} = 61 \times 8 = 488 \ cm^2$$

**(Question 3) The shape of the top surface of a table is trapezium. Its parallel sides are 1 m and 1.4 m and the perpendicular distance between them is 0.9 m. Find its area.**

Solution: Area of the trap. $= \left\{ \frac{1}{2} \times (1 + 1.4) \times 0.9 \right\}$

$$= \left\{ \frac{1}{2} \times \frac{24}{10} \times \frac{9}{10} \right\} = 1.08 \ m^2$$

**(Question 4) The area of a trapezium is 1080 cm². If the lengths of its parallel sides be 55 cm and 35 cm, find the distance between them.**

Solution: Let the height be x cm.

$$\therefore \left\{\frac{1}{2} \times (55 + 35) \times x\right\} = 1080$$

$$\Rightarrow \frac{1}{2} \times 90 \times x = 1080$$

$$\Rightarrow x = \frac{1080}{45} = 24$$

Therefore the required distance is 24 cm.

**(Question 5) A field is in the form of a trapezium. Its area is 1586 m² and the distance between its parallel sides is 26 m. If one of the parallel sides is 84 m, find the other.**

Solution: Let the length of the other parallel side be x m.

$$\therefore \left\{\frac{1}{2} \times (84 + x) \times 26\right\} = 1586$$

$$\Rightarrow 1092 + 13x = 1586$$

$$\Rightarrow 13x = 1586 - 1092$$

$$\Rightarrow x = \frac{494}{13} = 38$$

Therefore, the length of the other parallel sides is 38 m.

**(Question 6) The area of a trapezium is 405 cm². Its parallel sides are in the ratio 4 : 5 and the distance between them is 18 cm. Find the length of each of the parallel sides.**

Solution: Let the length of the sides be 4x and 5x cm.

$$\therefore \left\{ \frac{1}{2} \times (4x + 5x) \times 18 \right\} = 405$$

$$\Rightarrow 9x \times 9 = 405$$

$$\Rightarrow x = \frac{405}{81} = 5$$

Therefore the length of the sides are 20 cm and 25 cm.

**(Question 7) The area of a trapezium is 180 cm² and its height is 9 cm. If one of the parallel sides is longer that the other by 6 cm, find the two parallel sides.**

Solution: Let the lengths of the parallel sides be x cm and (x + 6) cm.

$$\therefore \left\{ \frac{1}{2} \times (x + x + 6) \times 9 \right\} = 180$$

$$\Rightarrow 18x + 54 = 360$$

$$\Rightarrow 18x = 360 - 54$$

$$\Rightarrow x = \frac{306}{18} = 17$$

Therefore lengths of the parallel sides are 17 cm and (17 + 6) = 23 cm.

**(Question 8) In a trapezium – shaped field, one of the parallel sides is twice the other. If the area of the field is 9450 m² and the perpendicular distance between the two parallel sides is 84 m, find the length of the longer of the parallel sides.**

Solution: Let the lengths of the parallel sides be x m and 2x m.

$$\therefore \left\{ \frac{1}{2} \times (x + 2x) \times 84 \right\} = 9450$$

$$\Rightarrow 3x \times 42 = 9450$$

$$\Rightarrow x = \frac{9450}{126} = 75$$

Therefore lengths of the parallel sides are 75 m and (75 × 2) = 150 m.

**(Question 9) The length of the fence of a trapezium – shaped field ABCD is 130 m and side AB is perpendicular to each of the parallel sides AD and BC. If BC = 54 m, CD = 19 m and AD = 42 m, find the area of the field.**

Solution: Length of the side = [130 – (54 + 19 + 42)] = 15 m

∴ Area of the trap. – shaped field,

$$= \left\{ \frac{1}{2} \times (42 + 54) \times 15 \right\} m^2$$

$$= \left\{ \frac{1}{2} \times 96 \times 15 \right\} m^2$$

$$= (48 \times 15) \, m^2 = 720 m^2$$

**(Question 10) In the given figure, ABCD is a trapezium in which AD ∥ BC, ∠ABC = 90°, AD = 16 cm, AC = 41 cm and BC = 40 cm. Find the area of the trapezium.**

Solution: From the right, Δ ABC,

∴ AB² = (AC² – BC²)

⇒ AB² = (41)² – (40)²

⇒ AB² = (1681 – 1600) = 81

$\Rightarrow AB = \sqrt{81} = 9$

$\therefore$ Length $= 9$ cm.

Now, area of the field

$= \left\{\frac{1}{2} \times (16 + 40) \times 9\right\} cm^2$

$= \left\{\frac{1}{2} \times 56 \times 9\right\} cm^2$

$= 28 \times 9 \ cm^2 = 252 \ cm^2$

**(Question 11) The parallel sides of a trapezium are 20 cm and 10 cm. Its nonparallel sides are both equal, each being 13 cm. Find the area of the trapezium.**

Solution: Let ABCD be the given trapezium in which AB ∥ DC, AB = 20 cm, DC = 10 cm

AD = BC = 13 cm.

Draw CL ⊥ AB and CM ∥ DA, meeting AB at L and M respectively.

Clearly, AMCD is a ∥ gm.

$\therefore$ AM = DC = 10 cm

MB = (AB – AM) = (20 – 10) = 10 cm

Now, CM = DA = 13 cm and CB = 13 cm.

$\therefore$ ∆CMB is an isosceles triangle and CL ⊥ MB.

$\Rightarrow$ L is the midpoint of MB.

$$\Rightarrow \text{ML} = \text{LB} = \left(\tfrac{1}{2} \times MB\right) = \left(\tfrac{1}{2} \times 10\right) = 5\ cm$$

From right $\Delta$CLM, we have:

$$\text{CL}^2 = (\text{CM}^2 - \text{ML}^2) = \{13^2 - 5^2\} = (169 - 25) = 144\ cm^2$$

$$\Rightarrow \text{CL} = \sqrt{144} = 12\ cm$$

Therefore height of the trapezium is 12 cm.

$$\therefore \text{Area of the trapezium} = \left\{\tfrac{1}{2} \times (20 + 10) \times 12\right\} cm^2$$

$$= (15 \times 12) = 180\ cm^2$$

**(Question 12) The parallel sides of a trapezium are 25 cm and 11 cm. While its nonparallel sides are 15 cm and 13 cm. Find the area of the trapezium.**

Solution: Let ABCD be the given trapezium in which AB ⫽ DC, AB = 25 cm, DC = 11 cm, AD = 15 cm and BC = 13 cm.

Draw CL ⊥ AB and CM ⫽ DA, meeting AB at L and M respectively.

Clearly, AMCD is a ⫽ gm.

∴ AM = DC = 11 cm.

MB = (AB – AM) = (25 – 11) = 14 cm

From ∆CMB, we have:

CM = 13 cm

MB = 14 cm

BC = 15 cm

$\therefore s = \frac{1}{2}(13 + 14 + 15) = \frac{1}{2} \times 42 = 21$ cm

$(s-a) = (21-13) = 8$ cm; $\quad (s-b) = (21-14) = 7$ cm

$(s-c) = (21-15) = 6$ cm

Area of $\Delta CMB = \sqrt{s(s-a)(s-b)(s-c)} = \sqrt{21 \times 8 \times 7 \times 6} = 84 \; cm^2$

$\therefore \frac{1}{2} \times MB \times CL = 84$

$\Rightarrow \frac{1}{2} \times 14 \times CL = 84$

$\Rightarrow CL = \frac{84}{7} = 12$

Area of the trap. $= \left\{ \frac{1}{2} \times (25 + 11) \times 12 \right\} cm^2$

$= \{36 \times 6\} = 216 \; cm^2$

# Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 18 Exercise 18.1

**Clear Explanations**: The solutions provide step-by-step guidance making complex problems easier to understand and solve.

**Concept Reinforcement**: By working through the exercise students reinforce their understanding of how to calculate the area of trapeziums and polygons.

**Expert Preparation**: The solutions are prepared by subject experts ensuring that the explanations are accurate and aligned with the curriculum.

**Improved Confidence**: With thorough solutions and practice students gain confidence in their ability to tackle similar problems in exams and assignments.