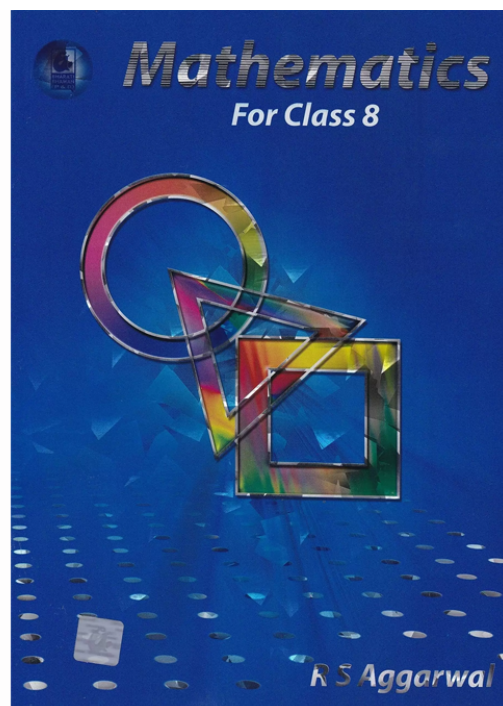


RS Aggarwal Solutions for Class 8 Maths Chapter 18–Area of a Trapezium and a Polygon

Class 8 - Chapter 18 Area of a Trapezium and a Polygon



For any clarifications or questions you can write to info@indcareer.com

Postal Address

IndCareer.com, 52, Shilpa Nagar, Somalwada Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888, **Website:** <https://www.indcareer.com>

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>



RS Aggarwal Solutions for Class 8 Maths Chapter 18–Area of a Trapezium and a Polygon

Class 8: Maths Chapter 18 solutions. Complete Class 8 Maths Chapter 18 Notes.

RS Aggarwal Solutions for Class 8 Maths Chapter 18–Area of a Trapezium and a Polygon

RS Aggarwal 8th Maths Chapter 18, Class 8 Maths Chapter 18 solutions

Ex 18A

Q1.

Answer :

Area of a trapezium = $\frac{1}{2} \times (\text{Sum of parallel sides}) \times (\text{Distance between them})$

$$\begin{aligned} &= \left\{ \frac{1}{2} \times (24 + 20) \times 15 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 44 \times 15 \right) \text{ cm}^2 \\ &= (22 \times 15) \text{ cm}^2 \\ &= 330 \text{ cm}^2 \end{aligned}$$

Hence, the area of the trapezium is 330 cm^2 .

Q2.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

Area of a trapezium = $\frac{1}{2} \times (\text{Sum of parallel sides}) \times (\text{Distance between them})$

$$\begin{aligned} &= \left\{ \frac{1}{2} \times (38.7 + 22.3) \times 16 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 61 \times 16 \right) \text{ cm}^2 \\ &= (61 \times 8) \text{ cm}^2 \\ &= 488 \text{ cm}^2 \end{aligned}$$

Hence, the area of the trapezium is 488 cm^2 .

Q3.

Answer :

Area of a trapezium = $\frac{1}{2} \times (\text{Sum of parallel sides}) \times (\text{Distance between them})$

$$\begin{aligned} &= \left\{ \frac{1}{2} \times (1 + 1.4) \times 0.9 \right\} \text{ m}^2 \\ &= \left(\frac{1}{2} \times 2.4 \times 0.9 \right) \text{ m}^2 \\ &= (1.2 \times 0.9) \text{ m}^2 \\ &= 1.08 \text{ m}^2 \end{aligned}$$

Hence, the area of the top surface of the table is 1.08 m^2 .

Q4.

Answer :

Let the distance between the parallel sides be x .

Now,

$$\begin{aligned}\text{Area of trapezium} &= \left\{ \frac{1}{2} \times (55 + 35) \times x \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 90 \times x \right) \text{ cm}^2 \\ &= 45x \text{ cm}^2\end{aligned}$$

Area of the trapezium = 1080 cm^2 (Given)

$$\therefore 45x = 1080$$

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

$$\Rightarrow x = 24 \text{ cm}$$

Hence, the distance between the parallel sides is 24 cm.

Q5.

Answer :

Let the length of the required side be x cm.

Now,

$$\begin{aligned}\text{Area of trapezium} &= \left\{ \frac{1}{2} \times (84 + x) \times 26 \right\} \text{ m}^2 \\ &= (1092 + 13x) \text{ m}^2\end{aligned}$$

Area of trapezium = 1586 m^2 (Given)

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

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

$$\Rightarrow 13x = 494$$

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

$$\Rightarrow x = 38 \text{ m}$$

Hence, the length of the other side is 38 m.

Q6.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

Let the lengths of the parallel sides of the trapezium be $4x$ cm and $5x$ cm, respectively.

Now,

$$\begin{aligned}\text{Area of trapezium} &= \left\{ \frac{1}{2} \times (4x + 5x) \times 18 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 9x \times 18 \right) \text{ cm}^2 \\ &= 81x \text{ cm}^2\end{aligned}$$

$$\text{Area of trapezium} = 405 \text{ cm}^2 \text{ (Given)}$$

$$\therefore 81x = 405$$

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

$$\Rightarrow x = 5 \text{ cm}$$

$$\text{Length of one side} = (4 \times 5) \text{ cm} = 20 \text{ cm}$$

$$\text{Length of the other side} = (5 \times 5) \text{ cm} = 25 \text{ cm}$$

Q7.

Answer :

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

Now,

$$\begin{aligned}\text{Area of trapezium} &= \left\{ \frac{1}{2} \times (x + x + 6) \times 9 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times (2x + 6) \times 9 \right) \text{ cm}^2 \\ &= 4.5(2x + 6) \text{ cm}^2 \\ &= (9x + 27) \text{ cm}^2\end{aligned}$$

$$\text{Area of trapezium} = 180 \text{ cm}^2 \text{ (Given)}$$

$$\therefore 9x + 27 = 180$$

$$\Rightarrow 9x = (180 - 27)$$

$$\Rightarrow 9x = 153$$

$$\Rightarrow x = \frac{153}{9}$$

$$\Rightarrow x = 17$$

Hence, the lengths of the parallel sides are 17 cm and 23 cm, that is, $(17 + 6)$ cm.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Q8.

Answer :

Let the lengths of the parallel sides be x cm and $2x$ cm.

$$\begin{aligned}\text{Area of trapezium} &= \left\{ \frac{1}{2} \times (x + 2x) \times 84 \right\} \text{ m}^2 \\ &= \left(\frac{1}{2} \times 3x \times 84 \right) \text{ m}^2 \\ &= (42 \times 3x) \text{ m}^2 \\ &= 126x \text{ m}^2\end{aligned}$$

Area of the trapezium = 9450 m^2 (Given)

$$\therefore 126x = 9450$$

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

$$\Rightarrow x = 75$$

Thus, the length of the parallel sides are 75 m and 150 m, that is, (2×75) m, and the length of the longer side is 150 m.

Q9.

Answer :

$$\begin{aligned}\text{Length of the side AB} &= (130 - (54 + 19 + 42)) \text{ m} \\ &= 15 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Area of the trapezium-shaped field} &= \left\{ \frac{1}{2} \times (AD + BC) \times AB \right\} \\ &= \left\{ \frac{1}{2} \times (42 + 54) \times 15 \right\} \text{ m}^2 \\ &= \left(\frac{1}{2} \times 96 \times 15 \right) \text{ m}^2 \\ &= (48 \times 15) \text{ m}^2 \\ &= 720 \text{ m}^2\end{aligned}$$

Hence, the area of the field is 720 m^2 .

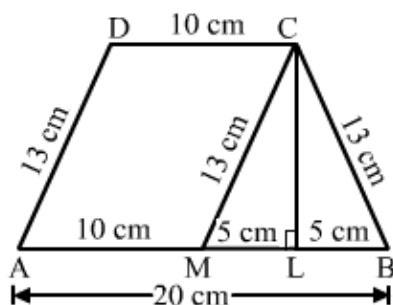
Q10.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Q11.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :



Let ABCD be the given trapezium in which $AB \parallel DC$, $AB = 20$ cm, $DC = 10$ cm and $AD = BC = 13$ cm.

Draw $CL \perp AB$ and $CM \parallel DA$ meeting AB at L and M , respectively.

Clearly, AMCD is a parallelogram.

Now,

$$AM = DC = 10 \text{ cm}$$

$$MB = (AB - AM)$$

$$= (20 - 10) \text{ cm}$$

$$= 10 \text{ cm}$$

Also,

$$CM = DA = 13 \text{ cm}$$

Therefore, $\triangle CMB$ is an isosceles triangle and $CL \perp MB$.

L is the midpoint of B .

$$\begin{aligned}\Rightarrow ML &= LB = \left(\frac{1}{2} \times MB\right) \\ &= \left(\frac{1}{2} \times 10\right) \text{ cm} \\ &= 5 \text{ cm}\end{aligned}$$

From right $\triangle CLM$, we have :

$$\begin{aligned}CL^2 &= (CM^2 - ML^2) \text{ cm}^2 \\ \Rightarrow CL^2 &= \{(13)^2 - (5)^2\} \text{ cm}^2 \\ \Rightarrow CL^2 &= (109 - 25) \text{ cm}^2 \\ \Rightarrow CL^2 &= 144 \text{ cm}^2 \\ \Rightarrow CL &= \sqrt{144} \text{ cm} \\ \Rightarrow CL &= 12 \text{ cm} \\ \therefore \text{Length of CL} &= 12 \text{ cm}\end{aligned}$$

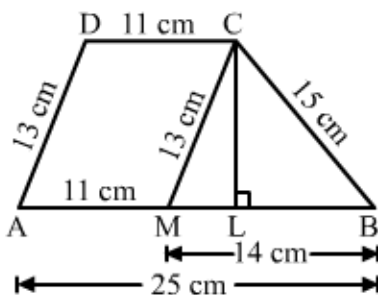
$$\begin{aligned}\text{Area of the trapezium} &= \left\{ \frac{1}{2} \times (AB + DC) \times CL \right\} \\ &= \left\{ \frac{1}{2} \times (20 + 10) \times 12 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 30 \times 12 \right) \text{ cm}^2 \\ &= (15 \times 12) \text{ cm}^2 \\ &= 180 \text{ cm}^2\end{aligned}$$

Hence, the area of the trapezium is 180 cm^2 .

Q12

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :



Let ABCD be the trapezium in which $AB \parallel DC$, $AB = 25$ cm, $CD = 11$ cm, $AD = 13$ cm and $BC = 15$ cm.

Draw $CL \perp AB$ and $CM \parallel DA$ meeting AB at L and M , respectively.

Clearly, AMCD is a parallelogram.

Now,

$$MC = AD = 13 \text{ cm}$$

$$AM = DC = 11 \text{ cm}$$

$$\Rightarrow MB = (AB - AM)$$

$$= (25 - 11) \text{ cm}$$

$$= 14 \text{ cm}$$

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Thus, in $\triangle CMB$, we have :

$$CM = 13 \text{ cm}$$

$$MB = 14 \text{ cm}$$

$$BC = 15 \text{ cm}$$

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

$$= \frac{1}{2} 42 \text{ cm}$$

$$= 21 \text{ cm}$$

$$(s - a) = (21 - 13) \text{ cm}$$

$$= 8 \text{ cm}$$

$$(s - b) = (21 - 14) \text{ cm}$$

$$= 7 \text{ cm}$$

$$(s - c) = (21 - 15) \text{ cm}$$

$$= 6 \text{ cm}$$

$$\begin{aligned}\therefore \text{Area of } \triangle CMB &= \sqrt{s(s-a)(s-b)(s-c)} \\ &= \sqrt{21 \times 8 \times 7 \times 6} \text{ cm}^2 \\ &= 84 \text{ cm}^2\end{aligned}$$

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

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

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

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

$$\begin{aligned}\text{Area of the trapezium} &= \left\{ \frac{1}{2} \times (AB + DC) \times CL \right\} \\ &= \left\{ \frac{1}{2} \times (25 + 11) \times 12 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 36 \times 12 \right) \text{ cm}^2 \\ &= (18 \times 12) \text{ cm}^2 \\ &= 216 \text{ cm}^2\end{aligned}$$

Hence, the area of the trapezium is 216 cm^2 .

Ex 18B

Q1.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

$$\begin{aligned}\text{Area of quadrilateral ABCD} &= (\text{Area of } \triangle ADC) + (\text{Area of } \triangle ACB) \\ &= \left(\frac{1}{2} \times AC \times DM\right) + \left(\frac{1}{2} \times AC \times BL\right) \\ &= \left[\left(\frac{1}{2} \times 24 \times 7\right) + \left(\frac{1}{2} \times 24 \times 8\right)\right] \text{ cm}^2 \\ &= (84 + 96) \text{ cm}^2 \\ &= 180 \text{ cm}^2\end{aligned}$$

Hence, the area of the quadrilateral is 180 cm^2 .

Q2.

Answer :

$$\begin{aligned}\text{Area of quadrilateral ABCD} &= (\text{Area of } \triangle ABD) + (\text{Area of } \triangle BCD) \\ &= \left(\frac{1}{2} \times BD \times AL\right) + \left(\frac{1}{2} \times BD \times CM\right) \\ &= \left[\left(\frac{1}{2} \times 36 \times 19\right) + \left(\frac{1}{2} \times 36 \times 11\right)\right] \text{ m}^2 \\ &= (342 + 198) \text{ m}^2 \\ &= 540 \text{ m}^2\end{aligned}$$

Hence, the area of the field is 540 m^2 .

Q3.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

$$\begin{aligned}\text{Area of pentagon ABCDE} &= (\text{Area of } \triangle AEN) + (\text{Area of trapezium EDMN}) \\ &+ (\text{Area of } \triangle DMC) + (\text{Area of } \triangle ACB) \\ &= \left(\frac{1}{2} \times AN \times EN\right) + \left(\frac{1}{2} \times (EN + DM) \times NM\right) + \left(\frac{1}{2} \times MC \times DM\right) + \left(\frac{1}{2} \times AC \times BL\right) \\ &= \left(\frac{1}{2} \times AN \times EN\right) + \left(\frac{1}{2} \times (EN + DM) \times (AM - AN)\right) + \left(\frac{1}{2} \times (AC - AM) \times DM\right) \\ &+ \left(\frac{1}{2} \times AC \times BL\right) \\ &= \left[\left(\frac{1}{2} \times 6 \times 9\right) + \left(\frac{1}{2} \times (9 + 12) \times (14 - 6)\right) + \left(\frac{1}{2} \times (18 - 14) \times 12\right) + \left(\frac{1}{2} \times 18 \times 4\right)\right] \\ &\quad \text{cm}^2 \\ &= (27 + 84 + 24 + 36) \text{ cm}^2 \\ &= 171 \text{ cm}^2\end{aligned}$$

Hence, the area of the given pentagon is 171 cm^2 .

Q4.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

$$\begin{aligned}\text{Area of hexagon ABCDEF} &= (\text{Area of } \triangle AFP) + (\text{Area of trapezium FENP}) \\ &+ (\text{Area of } \triangle ALB) \\ &= \left(\frac{1}{2} \times AP \times FP\right) + \left(\frac{1}{2} \times (FP + EN) \times PN\right) + \left(\frac{1}{2} \times ND \times EN\right) + \left(\frac{1}{2} \times MD \times CM\right) \\ &+ \left(\frac{1}{2} \times (CM + BL) \times LM\right) + \left(\frac{1}{2} \times AL \times BL\right) \\ &= \left(\frac{1}{2} \times AP \times FP\right) + \left(\frac{1}{2} \times (FP + EN) \times (PL + LN)\right) + \left(\frac{1}{2} \times (NM + MD) \times CM\right) \\ &+ \left(\frac{1}{2} \times MD \times CM\right) + \left(\frac{1}{2} \times (CM + BL) \times (LN + NM)\right) + \left(\frac{1}{2} \times (AP + PL) \times BL\right) \\ &= \\ &\left[\left(\frac{1}{2} \times 6 \times 8\right) + \left(\frac{1}{2} \times (8 + 12) \times (2 + 8)\right) + \left(\frac{1}{2} \times (2 + 3) \times 12\right) + \left(\frac{1}{2} \times 3 \times 6\right)\right. \\ &\left. + \left(\frac{1}{2} \times (6 + 8) \times (8 + 2)\right) + \left(\frac{1}{2} \times (6 + 2) \times 8\right)\right] \text{ cm}^2 \\ &= (24 + 100 + 30 + 9 + 70 + 32) \text{ cm}^2 \\ &= 265 \text{ cm}^2\end{aligned}$$

Hence, the area of the hexagon is 265 cm^2 .

Answer :

$$\begin{aligned}
 \text{Area of hexagon ABCDEF} &= (\text{Area of } \triangle AFP) + (\text{Area of trapezium FENP}) \\
 &+ (\text{Area of } \triangle ALB) \\
 &= \left(\frac{1}{2} \times AP \times FP\right) + \left(\frac{1}{2} \times (FP + EN) \times PN\right) + \left(\frac{1}{2} \times ND \times EN\right) + \left(\frac{1}{2} \times MD \times CM\right) \\
 &+ \left(\frac{1}{2} \times (CM + BL) \times LM\right) + \left(\frac{1}{2} \times AL \times BL\right) \\
 &= \left(\frac{1}{2} \times AP \times FP\right) + \left(\frac{1}{2} \times (FP + EN) \times (PL + LN)\right) + \left(\frac{1}{2} \times (NM + MD) \times CM\right) \\
 &+ \left(\frac{1}{2} \times MD \times CM\right) + \left(\frac{1}{2} \times (CM + BL) \times (LN + NM)\right) + \left(\frac{1}{2} \times (AP + PL) \times BL\right) \\
 &= \\
 &\left[\left(\frac{1}{2} \times 6 \times 8\right) + \left(\frac{1}{2} \times (8 + 12) \times (2 + 8)\right) + \left(\frac{1}{2} \times (2 + 3) \times 12\right) + \left(\frac{1}{2} \times 3 \times 6\right)\right. \\
 &+ \left.\left(\frac{1}{2} \times (6 + 8) \times (8 + 2)\right) + \left(\frac{1}{2} \times (6 + 2) \times 8\right)\right] \text{ cm}^2 \\
 &= (24 + 100 + 30 + 9 + 70 + 32) \text{ cm}^2 \\
 &= 265 \text{ cm}^2
 \end{aligned}$$

Hence, the area of the hexagon is 265 cm^2 .

Q5.

Answer :

$$\begin{aligned}
 \text{Area of pentagon ABCDE} &= (\text{Area of } \triangle ABC) + (\text{Area of } \triangle ACD) \\
 &+ (\text{Area of } \triangle ADE) \\
 &= \left(\frac{1}{2} \times AC \times BL\right) + \left(\frac{1}{2} \times AD \times CM\right) + \left(\frac{1}{2} \times AD \times EM\right) \\
 &= \left[\left(\frac{1}{2} \times 10 \times 3\right) + \left(\frac{1}{2} \times 12 \times 7\right) + \left(\frac{1}{2} \times 12 \times 5\right)\right] \text{ cm}^2 \\
 &= (15 + 42 + 30) \text{ cm}^2 \\
 &= 87 \text{ cm}^2
 \end{aligned}$$

Hence, the area of the pentagon is 87 cm^2 .

Q6.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

$$\begin{aligned}\text{Area enclosed by the given figure} &= (\text{Area of trapezium FEDC}) \\ &+ (\text{Area of square ABCF}) \\ &= \left[\left\{ \frac{1}{2} \times (6 + 20) \times 8 \right\} + (20 \times 20) \right] \text{ cm}^2 \\ &= (104 + 400) \text{ cm}^2 \\ &= 504 \text{ cm}^2\end{aligned}$$

Hence, the area enclosed by the figure is 504 cm^2 .

Q7.

Answer :

We will find the length of AC.

From the right triangles ABC and HGF, we have :

$$\begin{aligned}AC^2 = HF^2 &= \left\{ (5)^2 - (4)^2 \right\} \text{ cm} \\ &= (25 - 16) \text{ cm} \\ &= 9 \text{ cm}\end{aligned}$$

$$\begin{aligned}AC = HF &= \sqrt{9} \text{ cm} \\ &= 3 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Area of the given figure ABCDEFGH} &= (\text{Area of rectangle ADEH}) \\ &+ (\text{Area of } \triangle ABC) + (\text{Area of } \triangle HGF) \\ &= (\text{Area of rectangle ADEH}) + 2(\text{Area of } \triangle ABC) \\ &= (AD \times DE) + 2(\text{Area of } \triangle ABC) \\ &= \{(AC + CD) \times DE\} + 2\left(\frac{1}{2} \times BC \times AC\right) \\ &= \{(3 + 4) \times 8\} + 2\left(\frac{1}{2} \times 4 \times 3\right) \text{ cm}^2 \\ &= (56 + 12) \text{ cm} \\ &= 68 \text{ cm}^2\end{aligned}$$

Hence, the area of the given figure is 68 cm^2 .

Q8.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

Let $AL = DM = x$ cm

$LM = BC = 13$ cm

$$\therefore x + 13 + x = 23$$

$$\Rightarrow 2x + 13 = 23$$

$$\Rightarrow 2x = (23 - 13)$$

$$\Rightarrow 2x = 10$$

$$\Rightarrow x = 5$$

$$\therefore AL = 5 \text{ cm}$$

From the right $\triangle AFL$, we have :

$$FL^2 = AF^2 - AL^2$$

$$\Rightarrow FL^2 = \left\{ (13^2) - (5)^2 \right\}$$

$$\Rightarrow FL^2 = (169 - 25)$$

$$\Rightarrow FL^2 = 144$$

$$\Rightarrow FL = \sqrt{144}$$

$$\Rightarrow FL = 12 \text{ cm}$$

$$\therefore FL = BL = 12 \text{ cm}$$

Area of a regular hexagon = (Area of the trapezium ADEF)

Area of a regular hexagon = (Area of the trapezium ADEF)

+ (Area of the trapezium ABCD)

$$= 2(\text{Area of trapezium ADEF})$$

$$= 2 \left\{ \frac{1}{2} \times (AD + EF) \times FL \right\}$$

$$= 2 \left\{ \frac{1}{2} \times (23 + 13) \times 12 \right\} \text{ cm}^2$$

$$= 2 \left(\frac{1}{2} \times 36 \times 12 \right) \text{ cm}^2$$

$$= 432 \text{ cm}^2$$

Hence, the area of the given regular hexagon is 432 cm^2 .

Ex 18C

Q1.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

(b) 144 cm^2

$$\begin{aligned}\text{Area of the trapezium} &= \left\{ \frac{1}{2} \times (14 + 18) \times 9 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 32 \times 9 \right) \text{ cm}^2 \\ &= 144 \text{ cm}^2\end{aligned}$$

Q2.

Answer :

(c) 8 cm

Let the distance between the parallel sides be x cm.

$$\begin{aligned}\text{Then, area of the trapezium} &= \left\{ \frac{1}{2} \times (19 + 13) \times x \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 32 \times x \right) \text{ cm}^2 \\ &= 16x \text{ cm}^2\end{aligned}$$

But it is given that the area of the trapezium is 128 cm^2 .

$$\therefore 16x = 128$$

$$\Rightarrow x = \frac{128}{16}$$

$$\Rightarrow x = 8 \text{ cm}$$

Q3.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

(a) 45 cm

Let the length of the parallel sides be $3x$ cm and $4x$ cm, respectively.

$$\begin{aligned}\text{Then, area of the trapezium} &= \left\{ \frac{1}{2} \times (3x + 4x) \times 12 \right\} \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 7x \times 12 \right) \text{ cm}^2 \\ &= 42x \text{ cm}^2\end{aligned}$$

But it is given that the area of the trapezium is 630 cm^2 .

$$\therefore 42x = 630$$

$$\Rightarrow x = \frac{630}{42}$$

$$\Rightarrow x = 15 \text{ cm}$$

$$\text{Length of the parallel sides} = (3 \times 15) \text{ cm} = 45 \text{ cm}$$

$$(4 \times 15) \text{ cm} = 60 \text{ cm}$$

Hence, the shorter of the parallel sides is 45 cm.

Q4.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

(b) 23 cm

Let the length of the parallel sides be x cm and $(x + 6)$ cm, respectively.

$$\begin{aligned}\text{Then, area of the trapezium} &= \left\{ \frac{1}{2} \times (x + x + 6) \times 9 \right\} \text{ cm}^2 \\ &= \left\{ \frac{1}{2} \times (2x + 6) \times 9 \right\} \text{ cm}^2 \\ &= 4.5(2x + 6) \text{ cm}^2 \\ &= (9x + 27) \text{ cm}^2\end{aligned}$$

But it is given that the area of the trapezium is 180 cm^2 .

$$\therefore 9x + 27 = 180$$

$$\Rightarrow 9x = (180 - 27)$$

$$\Rightarrow 9x = 153$$

$$\Rightarrow x = \frac{153}{9}$$

$$\Rightarrow x = 17$$

Therefore, the length of the parallel sides are 17 cm and $(17 + 6)$ cm, which is equal to 23 cm.

Hence, the length of the longer parallel side is 23 cm.

Q5.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Answer :

(c) 80 cm^2

From the given trapezium, we find :

$$DC = AL = 7 \text{ cm} \quad [\text{since } DA \perp AB \text{ and } CL \perp AB]$$

From the right $\triangle CBL$, we have :

$$CL^2 = CB^2 - LB^2$$

$$\Rightarrow CL^2 = (10)^2 - (6)^2$$

$$\Rightarrow CL^2 = 100 - 36$$

$$\Rightarrow CL^2 = 64$$

$$\Rightarrow CL = \sqrt{64}$$

$$\Rightarrow CL = 8 \text{ cm}$$

$$\text{Area of the trapezium} = \left\{ \frac{1}{2} \times (7 + 13) \times 8 \right\} \text{ cm}^2$$

$$= \left(\frac{1}{2} \times 20 \times 8 \right) \text{ cm}^2$$

$$= 80 \text{ cm}^2$$



RS Aggarwal Class 8 Solutions

- Chapter 1–Rational Numbers
- Chapter 2–Exponents
- Chapter 3–Squares and Square Roots
- Chapter 4–Cubes and Cube Roots
- Chapter 5–Playing with Numbers
- Chapter 6–Operations on Algebraic Expressions
- Chapter 7–Factorisation
- Chapter 8–Linear Equations
- Chapter 9–Percentage
- Chapter 10–Profit and Loss
- Chapter 11–Compound Interest
- Chapter 12–Direct and Inverse Proportion
- Chapter 13–Time and Work
- Chapter 14–Polygons
- Chapter 15–Quadrilaterals
- Chapter 16–Parallelograms
- Chapter 17–Construction of Quadrilaterals
- Chapter 18–Area of a Trapezium and a Polygon
- Chapter 19–Three-Dimensional Figures
- Chapter 20–Volume and Surface Area of Solids
- Chapter 21–Data Handling
- Chapter 22–Constructing and Interpreting Bar Graphs
- Chapter 23–Pie Charts
- Chapter 24–Probability
- Chapter 25–Graphs

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

About RS Aggarwal Class 8 Book

Investing in an R.S. Aggarwal book will never be of waste since you can use the book to prepare for various competitive exams as well. RS Aggarwal is one of the most prominent books with an endless number of problems. R.S. Aggarwal's book very neatly explains every derivation, formula, and question in a very consolidated manner. It has tonnes of examples, practice questions, and solutions even for the NCERT questions.

He was born on January 2, 1946 in a village of Delhi. He graduated from Kirori Mal College, University of Delhi. After completing his M.Sc. in Mathematics in 1969, he joined N.A.S. College, Meerut, as a lecturer. In 1976, he was awarded a fellowship for 3 years and joined the University of Delhi for his Ph.D. Thereafter, he was promoted as a reader in N.A.S. College, Meerut. In 1999, he joined M.M.H. College, Ghaziabad, as a reader and took voluntary retirement in 2003. He has authored more than 75 titles ranging from Nursery to M. Sc. He has also written books for competitive examinations right from the clerical grade to the I.A.S. level.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

Frequently Asked Questions (FAQs)

Why must I refer to the RS Aggarwal textbook?

RS Aggarwal is one of the most important reference books for high school grades and is recommended to every high school student. The book covers every single topic in detail. It goes in-depth and covers every single aspect of all the mathematics topics and covers both theory and problem-solving. The book is true of great help for every high school student. Solving a majority of the questions from the book can help a lot in understanding topics in detail and in a manner that is very simple to understand. Hence, as a high school student, you must definitely dwell your hands on RS Aggarwal!

Why should you refer to RS Aggarwal textbook solutions on Indcareer?

RS Aggarwal is a book that contains a few of the hardest questions of high school mathematics. Solving them and teaching students how to solve questions of such high difficulty is not the job of any neophyte. For solving such difficult questions and more importantly, teaching the problem-solving methodology to students, an expert teacher is mandatory!

Does IndCareer cover RS Aggarwal Textbook solutions for Class 6-12?

RS Aggarwal is available for grades 6 to 12 and hence our expert teachers have formulated detailed solutions for all the questions of each edition of the textbook. On our website, you'll be able to find solutions to the RS Aggarwal textbook right from Class 6 to Class 12. You can head to the website and download these solutions for free. All the solutions are available in PDF format and are free to download!

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>

About IndCareer

IndCareer.com is a leading developer of online career guidance resources for the Indian marketplace. Established in 2007, IndCareer.com is currently used by over thousands of institutions across India, including schools, employment agencies, libraries, colleges and universities.

IndCareer.com is designed to assist you in making the right career decision - a decision that meets your unique interests and personality.

For any clarifications or questions you can write to **info@indcareer.com**

Postal Address

IndCareer.com
52, Shilpa Nagar,
Somalwada
Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888

Website: <https://www.indcareer.com>

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-18-area-of-a-trapezium-and-a-polygon/>