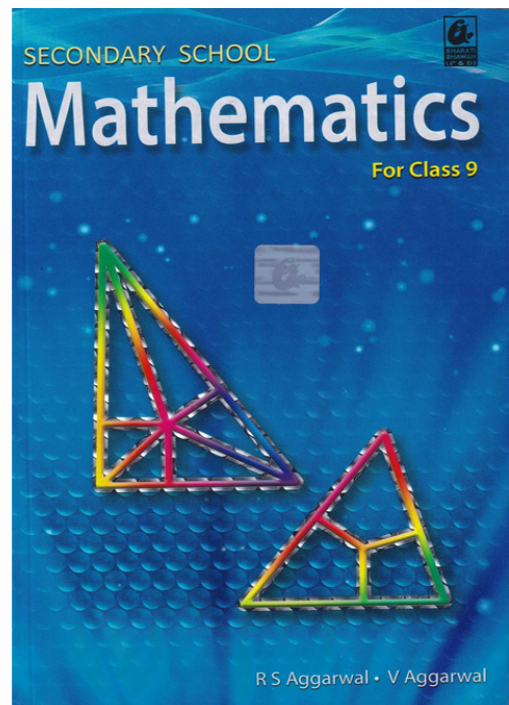


# RS Aggarwal Solutions for Class 9 Maths Chapter 7 – Areas

## Class 9 - Chapter 7 Areas



For any clarifications or questions you can write to [info@indcareer.com](mailto:info@indcareer.com)

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# RS Aggarwal Solutions for Class 9 Maths Chapter 7–Areas

Class 9: Maths Chapter 7 solutions. Complete Class 9 Maths Chapter 7 Notes.

## RS Aggarwal Solutions for Class 9 Maths Chapter 7–Areas

RS Aggarwal 9th Maths Chapter 7, Class 9 Maths Chapter 7 solutions

### Question 1.

#### Solution:

Base of the triangle (b) = 24cm and height (h) = 14.5 cm

$$\therefore \text{Area} = \frac{1}{2} \times b \times h = \frac{1}{2} \times 24 \times 14.5 \text{ cm}^2$$

$$= 174 \text{ cm}^2 \text{ Ans.}$$

### Question 2.

#### Solution:

Let the length of altitude of the triangular field = x then its base = 3x.

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$$\begin{aligned}\therefore \text{Area} &= \frac{1}{2} \times b \times h = \frac{1}{2} \times 3x \times x \\ &= \frac{3}{2} x^2\end{aligned}$$

Rate of sowing the field = Rs. 58 per hectare

Total cost = Rs. 783

$$\therefore \text{Area of the field} = \frac{783}{58} \times 10000 \text{ m}^2$$

$$= \frac{27 \times 10000}{2} \text{ m}^2$$

$$= 135000 \text{ m}^2$$

$$\therefore \frac{3}{2} x^2 = 135000$$

$$x^2 = \frac{135000 \times 2}{3} = 90000$$

$$x = \sqrt{90000} = 300$$

$$\begin{aligned}\therefore \text{Base of the field} &= 3x = 3 \times 300 \\ &= 900 \text{ m}\end{aligned}$$

and altitude =  $x = 300\text{m}$  Ans.

**Question 3.**

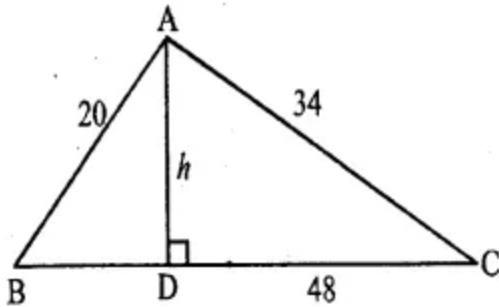
**Solution:**

Sides of a triangle = 42cm, 34cm and 20cm

Let  $a = 42\text{cm}$ ,  $b = 34\text{cm}$  and  $c = 20\text{ cm}$

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$$\text{then } s = \frac{a+b+c}{2} = \frac{42+34+20}{2} = \frac{96}{2} = 48$$



Using Hero's formula

$$\text{Area of triangle} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{48(48-42)(48-34)(48-20)}$$

$$= \sqrt{48 \times 6 \times 14 \times 28}$$

$$= \sqrt{4 \times 4 \times 3 \times 3 \times 2 \times 2 \times 7 \times 7 \times 2 \times 2}$$

$$= 4 \times 3 \times 2 \times 2 \times 7 = 336 \text{ cm}^2$$

Longest side = 42cm.

$$\therefore \text{Its altitude} = \frac{\text{Area} \times 2}{\text{Base}}$$

$$= \frac{336 \times 2}{42} \text{ cm} = 16 \text{ cm Ans.}$$

**Question 4.**

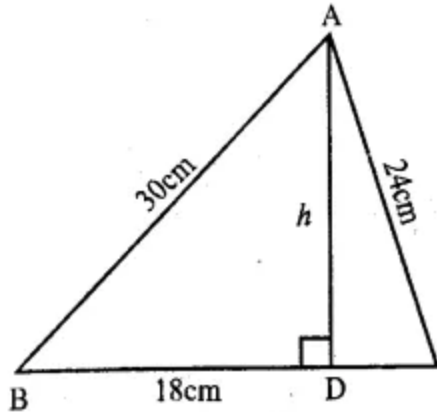
**Solution:**

Sides of the triangle = 18cm, 24cm and 30cm

Let a = 18 cm, b = 24 cm and c = 30cm

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$$\begin{aligned} \text{Then } s &= \frac{a+b+c}{2} = \frac{18+24+30}{2} \\ &= \frac{72}{2} = 36 \end{aligned}$$



Using Hero's formula.

$$\begin{aligned} \text{Area} &= \sqrt{s(s-a)(s-b)(s-c)} \\ &= \sqrt{36(36-18)(36-24)(36-30)} \\ &= \sqrt{36 \times 18 \times 12 \times 6} \\ &= \sqrt{6 \times 6 \times 3 \times 3 \times 2 \times 2 \times 2 \times 3 \times 3 \times 2} \\ &= 6 \times 3 \times 2 \times 2 \times 3 \text{ cm}^2 = 216 \text{ cm}^2 \end{aligned}$$

Base = smallest side = 18cm

$$\begin{aligned} \text{Altitude} &= \frac{\text{Area} \times 2}{\text{Base}} = \frac{216 \times 2}{18} \text{ cm} \\ &= 24 \text{ cm Ans.} \end{aligned}$$

**Question 5.**

**Solution:**

Sides of triangular field ABC are 91m, 98m and 105m

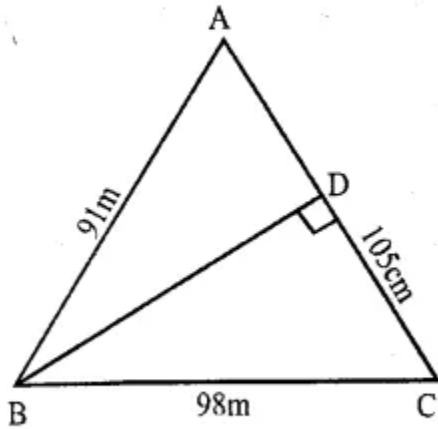
Let AC be the longest side

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$\therefore BD \perp AC$

Here  $a = 98\text{m}$ ,  $b = 105\text{m}$  and  $c = 91\text{m}$

$$\begin{aligned}\therefore s &= \frac{a+b+c}{2} \\ &= \frac{98+105+91}{2} = \frac{294}{2} = 147\end{aligned}$$



$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

(Hero's formula)

$$\begin{aligned} &= \sqrt{147(147 - 98)(147 - 105)(147 - 91)} \\ &= \sqrt{147 \times 49 \times 42 \times 56} \\ &= \sqrt{3 \times 7 \times 7 \times 7 \times 7 \times 7 \times 3 \times 2 \times 2 \times 2 \times 2 \times 7} \\ &= 3 \times 2 \times 2 \times 7 \times 7 \times 7 \text{ cm}^2 \\ &= 4116 \text{ m}^2 \end{aligned}$$

Length of perpendicular BD on the longest

$$\begin{aligned} \text{side AC} &= \frac{\text{Area} \times 2}{\text{Base}} \\ &= \frac{4116 \times 2}{105} \text{ m} = \frac{196 \times 2}{5} = \frac{392}{5} \text{ m} \\ &= 78.4 \text{ m Ans.} \end{aligned}$$

**Question 6.**

**Solution:**

Perimeter of triangle = 150m

Ratio in the sides = 5:12:13

Let sides be 5x, 12x and 13x

$$\therefore 5x + 12x + 13x = 150$$

$$\Rightarrow 30x = 150$$

$$\Rightarrow x = \frac{150}{30} = 5$$

$$\therefore \text{First side} = 5x = 5 \times 5 = 25 \text{ m}$$

$$\text{Second side} = 12x = 12 \times 5 = 60 \text{ m}$$

$$\text{and third side} = 13x = 13 \times 5 = 65 \text{ m}$$

$$s = \frac{a+b+c}{2} = \frac{25+60+65}{2} = \frac{150}{2} = 75$$

$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

(By Hero's formula)

$$= \sqrt{75(75-25)(75-60)(75-65)}$$

$$= \sqrt{75 \times 50 \times 15 \times 10}$$

$$= \sqrt{3 \times 5 \times 5 \times 5 \times 5 \times 2 \times 3 \times 5 \times 2 \times 5}$$

$$= 3 \times 5 \times 5 \times 2 \times 5 \text{ m}^2 = 750 \text{ m}^2 \text{ Ans.}$$

#### Question 7.

#### Solution:

Perimeter of a triangular field = 540m

Ratio is its sides = 25 : 17 : 12

Let first side =  $25x$

Second side =  $17x$

and third side =  $12x$

Then  $25x + 17x + 12x = 540$

$$\Rightarrow 54x = 540$$

$$\Rightarrow x = \frac{540}{54} = 10$$

First side =  $25x = 25 \times 10 = 250$  m

Second side =  $17x = 17 \times 10 = 170$  m

and third side =  $12x = 12 \times 10 = 120$  m

$$\text{Now } s = \frac{a+b+c}{2} = \frac{540}{2} = 270$$

$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

(Hero's formula)

$$= \sqrt{270(270-250)(270-170)(270-120)}$$

$$= \sqrt{270 \times 20 \times 100 \times 150} \text{ m}^2$$

$$= \sqrt{81000000} = 9000 \text{ m}^2$$

Rate of ploughing the field = Rs. 18.80 per  $10\text{m}^2$

$$\begin{aligned} \text{Total cost} &= \frac{9000 \times 18.80}{10} \\ &= \text{Rs. } 900 \times 18.80 \\ &= \text{Rs. } 16920 \text{ Ans.} \end{aligned}$$

**Question 8.**

**Solution:**

Perimeter of the triangular field = 324 m

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Length of the sides are 85m and 154m

$$\begin{aligned}\text{Third side} &= \text{Perimeter} - \text{Sum of two sides} \\ &= 324 - (85 + 154) \\ &= 324 - 239 = 85\text{m}\end{aligned}$$

$$\therefore s = \frac{a+b+c}{2} = \frac{324}{2} = 162$$

$$\begin{aligned}\text{Area of field} &= \sqrt{s(s-a)(s-b)(s-c)} \\ &\quad \text{(Hero's formula)} \\ &= \sqrt{162(162-85)(162-154)(162-85)} \\ &= \sqrt{162 \times 77 \times 8 \times 77} \\ &= \sqrt{77 \times 77 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3} \\ &= 77 \times 2 \times 2 \times 3 \times 3 \text{ m}^2 \\ &= 2772 \text{ m}^2\end{aligned}$$

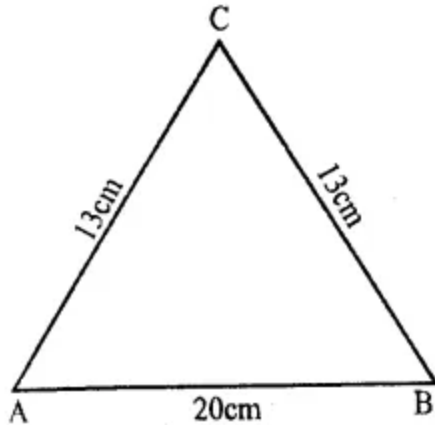
**Question 9.**

**Solution:**

Length of sides are

13 cm, 13 cm and 20cm

$$\begin{aligned}\therefore s &= \frac{a+b+c}{2} = \frac{13+13+20}{2} \\ &= \frac{46}{2} = 23\end{aligned}$$



$$\begin{aligned}\therefore \text{Area} &= \sqrt{s(s-a)(s-b)(s-c)} \\ &\quad \text{(Hero's Formula)} \\ &= \sqrt{23(23-13)(23-13)(23-20)} \\ &= \sqrt{23 \times 10 \times 10 \times 3} = \sqrt{10 \times 10 \times 69} \\ &= 10\sqrt{69} \text{ cm}^2 \\ &= 10 \times 8.306 = 83.06 \text{ cm}^2 \text{ Ans.}\end{aligned}$$

**Question 10.**

**Solution:**

Base of the isosceles triangle ABC = 80cm

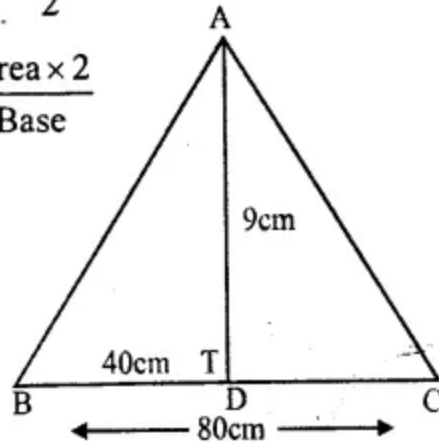
Area = 360 cm<sup>2</sup>

Let AD be the perpendicular from A to BC.

∴ AD will bisect BC at D.

$$\therefore BD = \frac{BC}{2} = \frac{80}{2} = 40\text{cm}$$

But  $AD = \frac{\text{Area} \times 2}{\text{Base}}$



$$= \frac{360 \times 2}{80} = 9\text{cm}$$

In right  $\triangle ABD$ ,

$$AB^2 = AD^2 + BD^2 = (9)^2 + (40)^2$$

$$= 81 + 1600 = 1681 = (41)^2$$

$$\therefore AB = 41\text{cm}$$

$$\text{Now Perimeter} = AB + AC + BC$$

$$= AB + AB + BC (\because AB = AC)$$

$$= 41 + 41 + 80 = 162 \text{ cm Ans.}$$

**Question 11.**

**Solution:**

Perimeter of the triangle

$$ABC = 42 \text{ cm.}$$

Let length of each equal sides = x

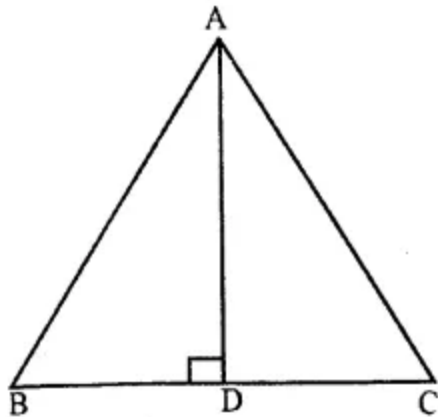
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$$\text{then base} = x \times \frac{3}{2} = \frac{3x}{2}$$

$$\therefore \text{Perimeter} = x + x + \frac{3x}{2} = \frac{7x}{2}$$

According to the sum,

$$\frac{7x}{2} = 42$$



$$\Rightarrow x = \frac{42 \times 2}{7} = 12$$

(i)  $\therefore$  Length of each equal side = 12cm

$$\text{and base} = 12 \times \frac{3}{2} = 18\text{cm}$$

$$\text{(ii) Now } s = \frac{a+b+c}{2} = \frac{42}{2} = 21$$

$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

(Hero's formula)

$$= \sqrt{21(21-12)(21-12)(21-18)}$$

$$= \sqrt{21 \times 9 \times 9 \times 3} = \sqrt{9 \times 9 \times 7 \times 3 \times 3} \text{ cm}^2$$

$$= 9 \times 3\sqrt{7} = 27\sqrt{7} \text{ cm}^2$$

$$= 27 \times 2.645 = 71.42 \text{ cm}^2$$

$$\text{(iii) Height of the triangle} = \frac{\text{Area} \times 2}{\text{Base}}$$

$$= \frac{71.42 \times 2}{18} \text{ cm.}$$

$$= 7.938 = 7.94 \text{ cmAns.}$$

**Question 12.**

**Solution:**

Area of equilateral triangle =  $36\sqrt{3} \text{ cm}^2$ .

Let length of each side = a

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$$\therefore \text{Area} = \frac{\sqrt{3}}{4} a^2$$

$$\therefore \frac{\sqrt{3}}{4} a^2 = 36\sqrt{3}$$

$$\Rightarrow a^2 = \frac{36\sqrt{3} \times 4}{\sqrt{3}}$$

$$\Rightarrow a^2 = 144 = (12)^2$$

$$\therefore a = 12 \text{ cm}$$

$$\text{and perimeter} = 3a = 3 \times 12 = 36 \text{ cm Ans.}$$

**Question 13.**

**Solution:**

Area of equilateral triangle =  $81\sqrt{3} \text{ cm}^2$

Let length of each side =  $a$

$$\text{then area} = \frac{\sqrt{3}}{4} a^2$$

$$\therefore \frac{\sqrt{3}}{4} a^2 = 81\sqrt{3}$$

$$\Rightarrow a^2 = \frac{81\sqrt{3} \times 4}{\sqrt{3}}$$

$$\Rightarrow a^2 = 324 = (18)^2$$

$$\therefore a = 18 \text{ cm.}$$

$$\text{Now, length of altitude} = \frac{\sqrt{3}}{2} a$$

$$= \frac{\sqrt{3}}{2} \times 18 = 9\sqrt{3} \text{ cm Ans.}$$

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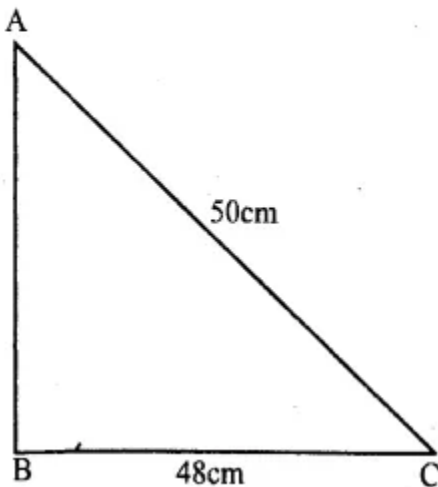
**Question 14.****Solution:**

$\Delta ABC$  is a right angled triangle, right angle at B.

$\therefore BC = 48\text{cm}$  and  $AC = 50\text{cm}$

$$\text{But } AC^2 = AB^2 + BC^2$$

(Pythagoras Theorem)



$$\begin{aligned} \Rightarrow (50)^2 &= AB^2 + (48)^2 \\ \Rightarrow 2500 &= AB^2 + 2304 \\ \Rightarrow AB^2 &= 2500 - 2304 = 196 = (14)^2 \\ \therefore AB &= 14\text{cm} \end{aligned}$$

Now, area of right angled  $\Delta ABC$

$$\begin{aligned} &= \frac{1}{2} \text{ base} \times \text{height} \\ &= \frac{1}{2} \times 48 \times 14 = 336 \text{ cm}^2 \text{ Ans.} \end{aligned}$$

**Question 15.**

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**Solution:**

Each side of equilateral triangle

(a) = 8cm.

**Question 16.**

**Solution:**

Let a be the each side of

the equilateral triangle.

$$\therefore \text{Height} = \frac{\sqrt{3}}{2} a$$

$$\therefore \frac{\sqrt{3}}{2} a = 9$$

$$\Rightarrow a = \frac{9 \times 2}{\sqrt{3}} \text{ cm}$$

$$\Rightarrow a = \frac{18 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} = \frac{18\sqrt{3}}{3} = 6\sqrt{3} \text{ cm}$$

$$\therefore \text{Area} = \frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times (6\sqrt{3})^2$$

$$= \frac{\sqrt{3}}{4} \times 36 \times 3 = 1.732 \times 27 \text{ cm}^2$$

$$= 46.764 \text{ cm}^2 = 46.76 \text{ cm}^2 \text{ Ans.}$$

**Question 17.**

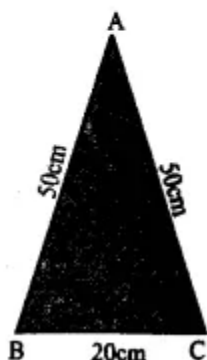
**Solution:**

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The given umbrella has 12 triangular pieces of the size 50cm x 20cm x 50cm. We see that each piece is of an isosceles triangle shape and we have to find firstly area of one such triangle.

$$s = \frac{a+b+c}{2} = \frac{50+20+50}{2}$$

$$= \frac{120}{2} = 60$$



$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{60(60-50)(60-50)(60-20)}$$

$$= \sqrt{60 \times 10 \times 10 \times 40} = \sqrt{240000}$$

$$= \sqrt{40000 \times 6} = 200 \times \sqrt{6} \text{ cm}^2$$

$$= 200 \times 2.45 = 490 \text{ cm}^2$$

$\therefore$  Area of such 12 triangular pieces  
 $= 490 \times 12 = 5880 \text{ cm}^2$

$\therefore$  Area of the cloth used = 5880 cm<sup>2</sup> Ans.

**Question 18.**

**Solution:**

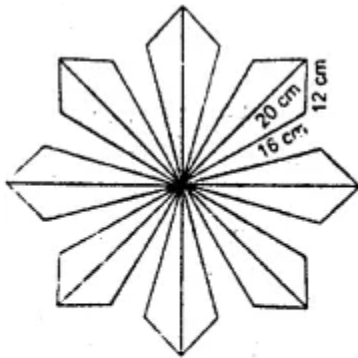
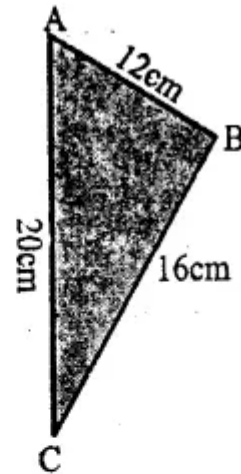
The given floral design is made of 16 tiles

The size of each tile is 16cm 12cm, 20cm

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Now we have to find the area of firstly one tile

$$= \frac{48}{2} = 24$$



$$s = \frac{a+b+c}{2} = \frac{16+12+20}{2}$$

$$= 96\text{cm}^2$$

$$\therefore \text{Area of 16 such tiles} = 96 \times 16 = 1536\text{ cm}^2$$

Cost of polishing = Re 1 per sq. cm

$$\therefore \text{Total cost} = 1536 \times 1 = \text{Rs. } 1536 \text{ Ans.}$$

$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

(Hero's formula)

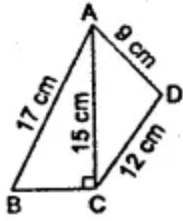
$$= \sqrt{24(24-16)(24-12)(24-20)}$$

$$= \sqrt{24 \times 8 \times 12 \times 4}$$

$$= \sqrt{3 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 2 \times 2 \times 2 \times 2}$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

Question 19.



**Solution:**

According to Pythagoras,

$$(AB)^2 = (AC)^2 + (BC)^2$$

$$(BC)^2 = (AB)^2 - (AC)^2$$

$$(BC)^2 = (17)^2 - (15)^2$$

$$(BC)^2 = 289 - 225 \Rightarrow (BC)^2 = 64 = (8)^2$$

$$BC = 8$$

Now perimeter quadrilateral ABCD

$$= AB + BC + CD + AD$$

$$= 17 + 8 + 12 + 9 = 46 \text{ cm}$$

Area of quadrilateral

$$= \text{Area of } \triangle ABC + \triangle ACD$$

$$\text{Now area of } \triangle ABC = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$= \frac{1}{2} \times 8 \times 15 = 60 \text{ cm}$$

Now area of  $\Delta ACD$

Let  $a = 15$  cm,  $b = 12$  cm and  $c = 9$  cm

Perimeter of the triangle  $= (a + b + c)$  units  
 $= 15 + 12 + 9 = 36$  cm

$$s = \frac{1}{2} (a + b + c) = \left( \frac{1}{2} \times 36 \right) \text{ cm} = 18 \text{ cm}$$

$$(s - a) = 18 - 15 = 3 \text{ cm}$$

$$(s - b) = 18 - 12 = 6 \text{ cm}$$

$$(s - c) = 18 - 9 = 9 \text{ cm}$$

By Heron's formula, the area of the  $\Delta ACD$

$$\text{is } \Delta = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{18 \times 3 \times 6 \times 9}$$

$$= \sqrt{3 \times 6 \times 3 \times 6 \times 3 \times 3} = 54 \text{ cm}$$

Hence, the area of given quadrilateral

$$= 60 + 54 = 114 \text{ cm}$$

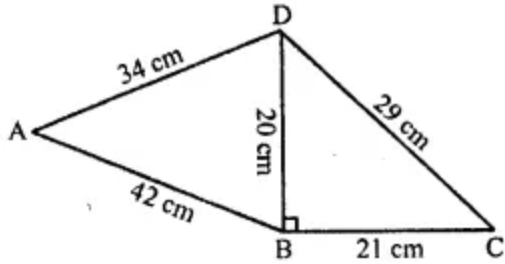
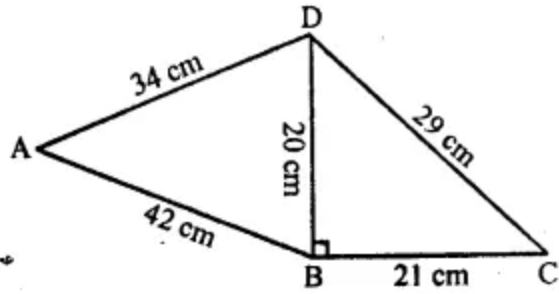
**Question 20.**

**Solution:**

In the figure, ABCD is a quadrilateral

AB = 42 cm, BC = 21 cm, CD = 29 cm,

DA = 34 cm and  $\angle CBD = 90^\circ$



(i) Perimeter  $AB + BC + CD + DA$   
 $= (42 + 21 + 29 + 34) \text{ cm} = 126 \text{ cm}$

$$(ii) \text{ Area of right } \triangle BCD = \frac{1}{2} BC \times BD$$

$$= \frac{1}{2} \times 21 \times 20 \text{ cm}^2 = 210 \text{ cm}^2$$

and  $\triangle ABD$ ,

$$s = \frac{AB + BD + DA}{2} = \frac{42 + 20 + 34}{2}$$

$$\left\{ s = \frac{a + b + c}{2} \right\}$$

$$= \frac{96}{2} = 48$$

$$\therefore \text{ area of } \triangle ABD = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{48(48-42)(48-20)(48-34)}$$

$$= \sqrt{48 \times 6 \times 28 \times 14}$$

$$= \sqrt{2 \times 2 \times 2 \times 6 \times 6 \times 2 \times 14 \times 14}$$

$$= 2 \times 2 \times 6 \times 14 = 336 \text{ cm}^2$$

$$\therefore \text{ area quad. ABCD} = 210 + 336$$

$$= 546 \text{ cm}^2$$

**Question 21.**

**Solution:**

from the figure

$\triangle DAB$

$$(AB)^2 = (DB)^2 - (DA)^2$$

$$(AB)^2 = (26)^2 - (24)^2$$

$$(AB)^2 = 676 - 576 = 100$$

$$(AB)^2 = (10)^2$$

$$AB = 10$$

Perimeter of quadrilateral DABC

$$= DA + AB + BC + CD$$

$$= 24 + 10 + 26 + 26 = 86 \text{ cm}$$

Now area of quadrilateral DABC = Area of  $\triangle DAB$  + Area of  $\triangle DBC$

$$= \frac{1}{2} \times AB \times DA + \left( \frac{\sqrt{3}a^2}{4} \right)$$

$$= 120 + \left( \frac{\sqrt{3}}{4} \times 676 \right)$$

$$= \frac{1}{2} \times 10 \times 24 + \left( \frac{\sqrt{3}a^2}{4} \right)$$

$$\approx 120 + (\sqrt{3} \times 169)$$

$$= 120 + (1.73 \times 169)$$

$$= 5 \times 24 + \left( \frac{\sqrt{3}}{4} \times (26)^2 \right)$$

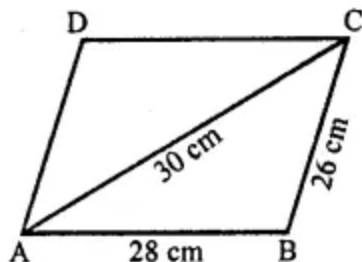
$$= 120 + 292.37 \text{ cm}^2$$

$$= 412.37 \text{ cm}^2$$

Question 22.

Solution:

ABCD is a parallelogram in which AB = 28 cm, BC = 26 cm and diagonal AC = 30 cm



∴ Diagonal AC bisect the parallelogram into equal triangles

∴ Area of parallelogram ABCD = 2 area  $\Delta ABC$

Now area of  $\Delta ABC$ ,

$$s = \frac{a+b+c}{2} = \frac{28+26+30}{2} = \frac{84}{2} = 42$$

$$\therefore \text{area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{42(42-28)(42-26)(42-30)}$$

$$= \sqrt{42 \times 14 \times 16 \times 12}$$

$$= \sqrt{2 \times 3 \times 7 \times 7 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3}$$

$$= 2 \times 2 \times 2 \times 2 \times 3 \times 7 = 336 \text{ cm}^2$$

∴ Area of ||gm ABCD = 2 (area of  $\Delta ABC$ )

$$= 2 \times 336 = 672 \text{ cm}^2$$

Question 23.

Solution:

from the figure,

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We know that

In the parallelogram ABCD,

AB = 14 cm, BC = 10 cm and AC = 16 cm

∴ Diagonals bisect the parallelogram into two triangles of equal area

∴ Area of ||gm ABCD = 2 area  $\Delta$ ABC

Now in  $\Delta$ ABC,

AB = 14 cm, BC = 10 cm and AC = 16 cm

$$\therefore s = \frac{a+b+c}{2} = \frac{14+10+16}{2} = \frac{40}{2} = 20$$

$$\therefore \text{area } \Delta\text{ABC} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{20(20-14)(20-10)(20-16)}$$

$$= \sqrt{20 \times 6 \times 10 \times 4}$$

$$= \sqrt{2 \times 2 \times 5 \times 2 \times 3 \times 2 \times 5 \times 2 \times 2}$$

$$= 2 \times 2 \times 2 \times 5 \times \sqrt{3} = 40\sqrt{3} \text{ cm}^2$$

∴ Area parallelogram ABCD

$$= 2 \times \text{area } \Delta\text{ABC} = 2 \times 40\sqrt{3} \text{ cm}^2$$

$$= 80(1.73) \text{ cm}^2$$

$$= 138.40 = 138.4 \text{ cm}^2$$

Question 24.

Solution:

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Area of quadrilateral ABCD

= Area of  $\triangle ABD$  + area of  $\triangle BCD$

$$= \frac{1}{2} BD \times AL + \frac{1}{2} BD \times CM$$

$$= \frac{1}{2} BD (AL + CM)$$

$$= \frac{1}{2} \times 64 (16.8 + 13.2) \text{ cm}^2$$

$$= 32 \times 30 = 960 \text{ cm}^2$$



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- Chapter 1–Real Numbers
- Chapter 2–Polynomials
- Chapter 3–Introduction to Euclid’s Geometry
- Chapter 4–Lines and Triangles
- Chapter 5–Congruence of Triangles and Inequalities in a Triangle
- Chapter 6–Coordinate Geometry
- Chapter 7–Areas
- Chapter 8–Linear Equations in Two Variables
- Chapter 9–Quadrilaterals and Parallelograms
- Chapter 10–Area
- Chapter 11–Circle
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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.

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