

SSLC Examination March 2026
Mathematics - English Version.
Detailed Solutions with Questions.
Prepared by Dr.V. S. RaveendraNath.

SECTION - A

Question. 1

In which of the arithmetic sequences given below, 37 is a term ?

- (a) 4, 9, 14, (b) 7, 12, 17, (c) 8, 12, 16, (d) 7, 11, 15,

Elaborated Solution.

Given , four arithmetic sequence

(b) 7, 12, 17, ; $d = 12 - 7 = 5$.

$37 - 7 = 30$ being the multiple of common difference.

Hence b is the answer

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Question. 2.

Curved surface area of a cone is 60 square centimetres. What is the curved surface area of another cone with same radius but slant height is one third of this cone ?

- (a) 45 square centimetres (b) 60 square centimetres
(c) 30 square centimetres (d) 20 square centimetres ✓

Elaborated Solution.

Given, CSA of a cone = 60cm^2 .

Hence CSA = By question = $60 \times \frac{1}{3}$
 $= 20\text{cm}^2$.

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Question. 3.

Which of the following is a point on the y -axis ?

- (a) (2, 0) (b) (0, 2) ✓ (c) (1, 5) (d) (5, 1)

Elaborated Solution.

$(0,2)$ [The coordinate of $x = 0$ i.e., y axis] .

Hence the answer is (b).

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Question. 4.

Weight of 7 students are given below. What is the median score ?

~~44, 42, 40, 47, 41, 38, 45~~

- (a) ~~42~~ ✓ (b) 41 (c) 38 (d) 40

Elaborated Solution.

Given , ascending order

38, 40, 41, 42, 44, 45 , 47.

Median = 42 [Middle score]

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Question. 5.

Which of the following is the algebraic form of the arithmetic sequence 6, 10, 14, ?

- (a) $4n+1$ (b) $6n+4$ (c) $5n+1$ (d) $4n+2$

Elaborated Solution.

Given, arithmetic sequence

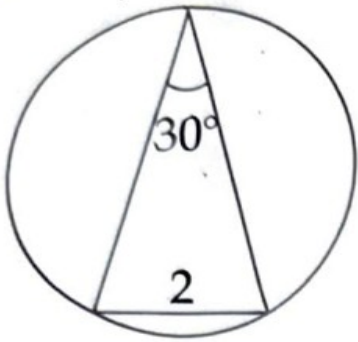
$$= 6, 10, 14, \dots$$

$$f = 6, d = 10 - 6 = 4.$$

$$\begin{aligned}x_n &= dn + f - d = 4n + 6 - 4 \\ &= 4n + 2.\end{aligned}$$

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Question. 6.



What is the diameter of the circle in the figure ?

- (a) $2\sqrt{3}$ centimetres ~~(b) 4 centimetres~~
(c) 3 centimetres (d) $4\sqrt{3}$ centimetres

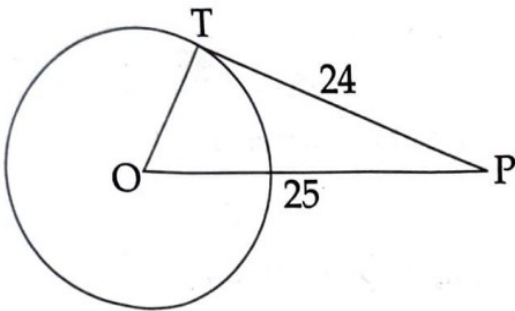
Elaborated Solution.

Using the formula $2r \frac{\sin C}{2}$

Hence we get 4cm.

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Question. 7.



Consider the above figure and read the following statements.

Statement 1: The length of the tangent drawn from the point P to the circle is 24 centimetres. If OP is 25 centimetres, then the radius of the circle is 7 centimetres.

Statement 2: A tangent to a circle is perpendicular to the radius through the point of contact.

Now choose the **correct** answer from those given below.

- (a) **Statement 1** is true, **statement 2** is false
- (b) **Statement 1** is false, **statement 2** is true
- (c) Both **statements** are true, **statement 2** is the reason of **statement 1**
- (d) Both **statements** are true, **statement 2** is not the reason of **statement 1**

Elaborated Solution.

Both the statements are true,
statement 2 is the reason for 1

Hence the answer (c)

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Question. 8.

The coordinates of two points of a line are (3, 1) and (5, 2) :
Read the following statements.

- (i) Slope of the line is 2
- (ii) Slope of the line is $\frac{1}{2}$
- (iii) (9, 4) is a point on this line.
- (iv) (4, 9) is a point on this line.

Now choose the **correct** answer from those given below.

- (a) (i) and (iii) are true
- (b) (ii) and (iv) are true
- ~~(c) (ii) and (iii) are true~~
- (d) (i) and (iv) are true

Elaborated Solution.

(ii) and (iii) are true

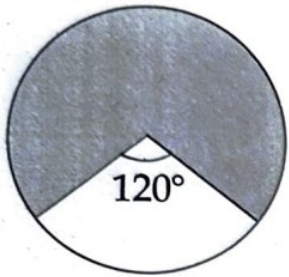
Hence the answer (c)

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SECTION - B.

Question. 9.

In the figure, a sector of the circle with central angle 120° is given. If a dot is put in the circle, without looking, what is the probability that the dot is in the shaded region?



Elaborated Solution.

$$\text{Shaded region} = 360 - 120 = 240$$

$$\text{Total} = 360$$

$$\text{Probability} = \frac{n(F)}{n(N)} = \frac{240}{360} = \frac{2}{3}$$

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Question. 10.

- (A) A person is asked to say a three digit number.
- What is the probability that all the three digits of this number are the same ?
 - What is the probability that it is a multiple of 5, which is less than 200 ?

OR

- (B) A box contains four slips numbered 1, 3, 5, 7 and another box contains three slips numbered 2, 4, 6. If one slip is drawn from each box.
- What is the probability that the product of the numbers being a prime ?
 - What is the probability that the product of the numbers is a multiple of 7 ?

Elaborated Solution.(A)

There are 900 three digit numbers

(a) Probability for all digits are

$$\text{same} = \frac{n(F)}{n(N)} = \frac{9}{900} = \frac{1}{100}$$

(b) Probability for the multiple of 5

$$\begin{aligned} \text{less than 200} &= \frac{n(F)}{n(N)} = \frac{20}{900} \\ &= \frac{1}{45} \end{aligned}$$

Elaborated Solution.(B)

First box slips - 1,3,5,7.

Second box slips - 2,4,6.

(a) Total number of possible pairs
= $m \times n = 4 \times 3 = 12$.

(Fundamental Counting Theorem)

Probability being the Product is

$$\text{prime} = \frac{n(F)}{n(N)} = \frac{1}{12} .$$

(b) Probability for multiple of 7

$$\frac{n(F)}{n(N)} = \frac{3}{12} .$$

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Question. 11.

7th term of an arithmetic sequence is 100 and 11th term is 140.

- (i) What is fifteenth term of this sequence ?
- (ii) What is the third term of this sequence ?

Elaborated Solution

Given, 7th term = 100

11th term = 140.

(i) 15th term (x_{15}) = $x_{11} + 4d$

$$x_{11} - x_7 = 140 - 100 = 40 = 4d$$

Hence 15th term = $140 + 40$
 $= 180.$

(ii) $x_3 = x_7 - 4d = 100 - 40 = 60.$

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Question. 12.

(A) The sum of first 3 terms of an arithmetic sequence is 30 and the sum of first 7 terms is 140.

- (i) What is the second term of this sequence ?
- (ii) What is the fourth term of this sequence ?
- (iii) Write the first three terms of this sequence.

OR

(B) Sum of first and 25th terms of an arithmetic sequence is 70.

- (i) What is the sum of 4th and 22nd terms of this sequence ?
- (ii) What is the 13th term of this sequence ?
- (iii) Find the sum of first 25 terms of this sequence.

Elaborated Solution(A)

Given sum of first 3 terms of an arithmetic sequence = 30.

Given sum of first 7 terms of an arithmetic sequence = 140

(i) Second term (x_2) = $\frac{30}{3} = 10.$

$$(ii) 4^{\text{th}} \text{ term} = \frac{140}{7} = 20.$$

(iii) First three terms = 5, 10, 15.
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OR

Elaborated Solution(B)

Given sum of first 25th = 70.

$$(i) x_4 + x_{22} = 70.$$

$$(ii) x_{13} = 35$$

$$(iii) \text{Sum } (s_{25}) = 25 \times 35 = 875.$$

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Question. 13.

The table below gives 45 students, classified according to their scores obtained in an examination.

Scores	Number of students
30 - 40	5
40 - 50	6
50 - 60	8
60 - 70	10
70 - 80	9
80 - 90	7
Total	45

They are lined up according to their scores.

- (i) The score of the student at which position is taken as the median ?
- (ii) According to the assumptions used to calculate the median, what is the score of the 20th student ?
- (iii) Calculate the median score.

Elaborated Solution

Scores	No.of students	cf
30-40	5	5
40-50	6	11
50-60	8	19
60-70	10	29
70-80	9	38
80-90	7	45
Total	45	

(i) Median possession $i \frac{45+1}{2} = \frac{46}{2}$
 $= 23.$

(ii) $d = \frac{70-60}{10} = \frac{10}{10} = 1.$

$$\frac{d}{2} = \frac{1}{2} = 0.5.$$

The wages of the 20th worker

$$x_{16} = 60 + 0.5 = 60.5..$$

(iii) Median wage

$$x_n = x_{16} + 3d$$

$$= 60.5 + 3 \times 1 = 63.5$$

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SECTION - C

Question. 14.

A circle is drawn with the line joining the points (4, 3) and (8, 5) as diameter.

- (i) What are the coordinates of the centre of the circle ?
- (ii) If (5, 2) is a point on one end of another diameter, what are the coordinates of the other end of that diameter ?

Elaborated Solution

Given points (4, 3) and (8, 5)

(i) Mid point of

$$\begin{aligned} &= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \\ &= \left(\frac{4+8}{2}, \frac{3+5}{2} \right) = \left(\frac{12}{2}, \frac{8}{2} \right) \\ &= (6, 4) \end{aligned}$$

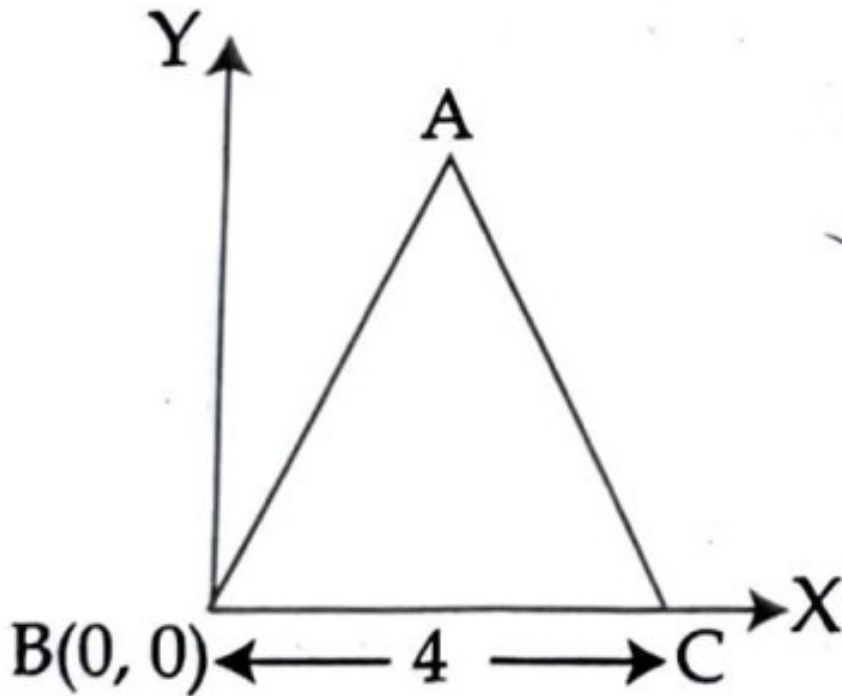
Centre = (6, 4)

(ii) (12-5, 8-2) = (7, 6)

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Question. 15.

In the figure, triangle ABC is equilateral.



- (i) What are the coordinates of C ?
- (ii) Calculate the height from A to BC.
- (iii) What are the coordinates of A ?

Elaborated Solution

(i) Coordinate of C(4,0)

(ii)

In rt. ΔBDC

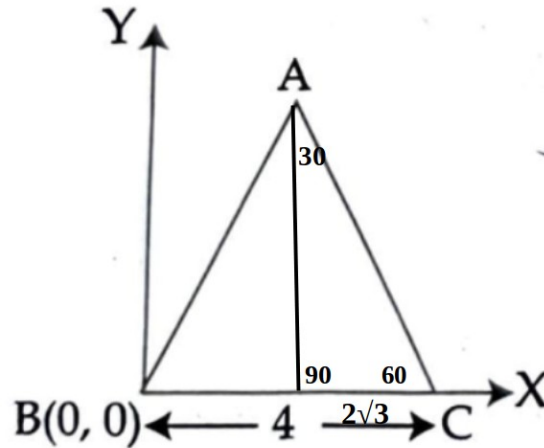
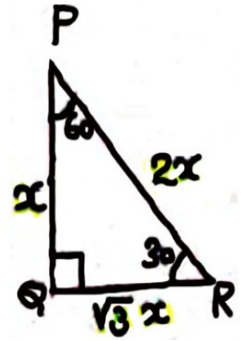
$30^\circ, 60^\circ, 90^\circ, \therefore$

ie., $1 : \sqrt{3} : 2$

Angles : $30^\circ, 60^\circ, 90^\circ$.

Sides : $1 : \sqrt{3} : 2$.

$x \quad \sqrt{3}x \quad 2x$.



(iii) Coordinate of A $(2, 2\sqrt{3})$.

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Question. 16.

- (A) A circle is drawn with line joining the points $(3, 5)$ and $(5, 9)$ as diameter.
- What are the coordinates of the centre of the circle ?
 - What is its radius ?
 - Write the equation of the circle.
- OR
- (B) (i) Find the slope of the line passing through the points $(3, 5)$ and $(9, 7)$.
- Write the equation of the line.
 - Write the coordinates of any other point on this line.

Elaborated Solution(A)

Given points $(3,5), (5,9)$ as diameter.

(i) Centre of the circle

Mid point of

$$= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$= \left(\frac{3+5}{2}, \frac{5+9}{2} \right) = \left(\frac{8}{2}, \frac{14}{2} \right) = (4,7)$$

∴ Centre of the circle $= (4,7)$

(ii) Radius $\sqrt{(5-4)^2 + (9-7)^2}$

$$= \sqrt{1^2 + 2^2} = \sqrt{1+4} = \sqrt{5}.$$

(iii) Equation of the circle

$$(x - 4)^2 + (y - 7)^2 = 5^2.$$

$$x^2 - 8x + 16 + y^2 - 14y + 49 = 25$$

$$x^2 + y^2 - 8x - 14y + 60 = 0.$$

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OR

Elaborated Solution(B)

Given points (3,5) ,(9,7)

(i) Slope $\frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 5}{9 - 3}$

$$= \frac{2}{6} = \frac{1}{3} .$$

(ii) Equation of the line

$$x - 3y + 2 = 0.$$

(iii) Other coordinates

$$(3+3, 5+1) = (6,6)$$

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SECTION - D

Question. 17.

(A) One side of a rectangle is 30 metre longer than the other and its area is 351 square metres.

- (i) Write the above information as a second degree equation.
- (ii) Calculate the length of the shorter side.

OR

(B) Find two numbers with sum 4 and product 2.

Elaborated Solution(A)

Given area = 351.

(i) Let the side be x

other side = $x + 30$

By question $x(x+30) = 351$.

ie., $x^2 + 30x = 351$.

(ii) $x^2 + 30x = 351$.

[using square completion method]

$$x^2 + 30x + 15^2 = 351 + 15^2$$

$$(x + 15)^2 = 351 + 225 = 576$$

$$x + 15 = \sqrt{576} = 24$$

$$x + 15 = 24 \text{ or } x + 15 = -24.$$

$$x = 9 \text{ or } x = 39$$

-39 rejected

Hence $x = 9$.

\therefore Shorter side = 9cm.

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Elaborated Solution(B)

Given sum = 4 , Product = 2.

Let the numbers are x and

$$4 - x$$

By question $x(4-x) = 2$

$$\text{ie., } 4x - x^2 = 2$$

$$\Rightarrow x^2 - 4x = -2$$

[using square completion method]

$$x^2 - 4x = -2$$

$$x^2 - 4x + 2^2 = -2 + 2^2$$

$$(x - 2)^2 = 2$$

$$x - 2 = \pm\sqrt{2}$$

$$x = (2 + \sqrt{2}), (2 - \sqrt{2})$$

\therefore Numbers are

$$(2 + \sqrt{2}), (2 - \sqrt{2})$$

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Question. 18.

- (i) Write the sequence of natural numbers which leaves a remainder 1 on division by 4.
- (ii) Is this an arithmetic sequence? Why?
- (iii) Write the algebraic form of the arithmetic sequence got by adding 2 to each term of the above sequence.

Elaborated Solution

(i) By question 1, 5, 9,

(ii) Yes,

It have common difference 4.

(iii) By question new sequence

$$= 3, 7, 11, \dots$$

$$f = 3; \quad d = 7 - 3 = 4 .$$

$$x_n = dn + f - d.$$

$$= 4n - 1 .$$

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Question. 19.

- (A) Sum of first n terms of an arithmetic sequence is $n^2 + 6n$.
- (i) What is the sum of first 7 terms ?
 - (ii) How many terms of this sequence, starting from the first, must be added to get 315 ?

OR

- (B) 5, 11, 17, is an arithmetic sequence.
- (i) Write the algebraic form of this sequence.
 - (ii) Calculate the sum of first 15 terms of this sequence.
 - (iii) Write the sum of first n terms of this sequence.

Elaborated Solution (A)

$$\text{Given sum} = n^2 + 6n$$

(i) Put $n = 7$

$$7^2 + 6 \times 7$$

$$= 49 + 42$$

$$= 91.$$

(ii) Let n be added to get 315.

$$n^2 + 6n = 315$$

[factorizing by square
completion method]

$$n^2 + 6n + 9 = 315 + 9$$

$$(n+3)^2 = 324$$

$$n+3 = \sqrt{324} = 18$$

$$n = 18 - 3 = 15$$

15 terms be added to get 315.

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OR

Elaborated Solution (B)

Given sequence

$$= 5, 11, 17, \dots$$

$$(i) f = 5; d = 11 - 5 = 6.$$

$$x_n = dn + f - d.$$

$$= 6n - 1.$$

$$(ii) \text{ Sum} = \frac{n}{2} [2f + (n-1)d]$$

$$= \frac{15}{2} [2 \times 5 + (15 - 1)6]$$

$$= \frac{15}{2} [10 + 14 \times 6]$$

$$= \frac{15}{2} \times 94 = 705.$$

(iii) Sum of n terms

$$\begin{aligned}
&= \frac{n}{2} [f + x_n] \\
&= \frac{n}{2} [5 + 6n - 1] \\
&= \frac{n}{2} [4 + 6n] \\
&= n(2 + 3n) \\
&= 3n^2 + 2n.
\end{aligned}$$

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Question. 20.

- (i) Write the polynomial $x^2 - 12x + 32$ as the product of two first degree polynomials.
- (ii) For what values of x , the polynomial $x^2 - 12x + 32$ becomes zero ?

Elaborated Solution

Given polynomial

$$= x^2 - 12x + 32.$$

(i) $x^2 - 12x + 32$

[Factorize by any method]

ie., $(x - 8)(x - 4)$.

(ii) Here $(x - 8)(x - 4) = 0$

so, $x - 8 = 0$ or $x - 4 = 0$

$x = 8$ or $x = 4$.

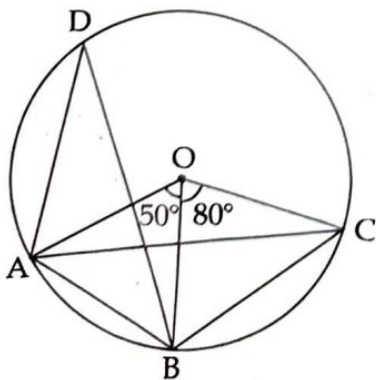
Hence $x = 8, 4$.

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SECTION - E

Question. 21.

In the figure O is the centre of the circle and A, B, C are points on the circle. $\angle AOB = 50^\circ$, $\angle BOC = 80^\circ$.



- (i) Calculate $\angle ADB$
- (ii) Calculate all angles of triangle ABC

Elaborated Solution

Given $\angle AOB = 50^\circ$.

$\angle BOC = 80^\circ$.

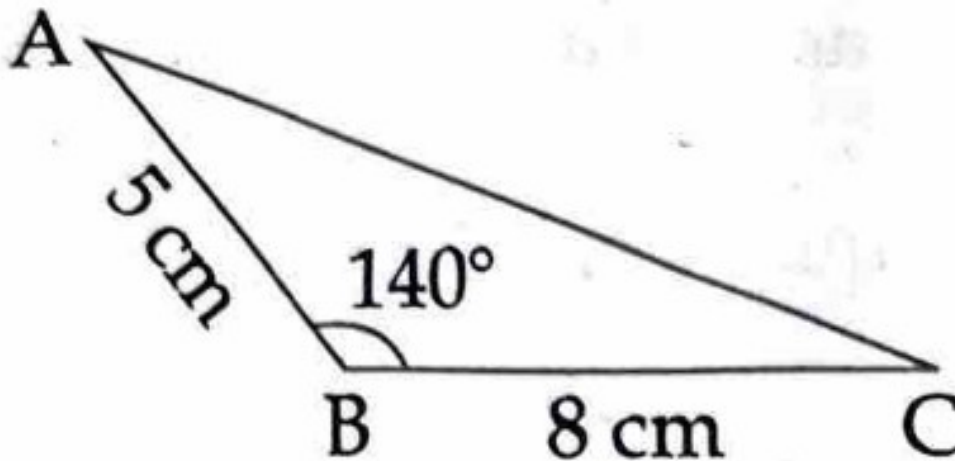
(i) $\angle ADB = 25^\circ$.

(ii) In ΔABC , $\angle A = 40^\circ$,
 $\angle B = 115^\circ$, $\therefore \angle C = 25^\circ$,

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Question. 22.

Calculate the area of triangle ABC.



Elaborated Solution

$$\begin{aligned}\text{Area} &= \frac{1}{2} ac \sin B \\ &= \frac{1}{2} \times 5 \times 8 \times \sin 40 \\ &= \frac{1}{2} \times 5 \times 8 \times 0.6428 \\ &= 12.856 \text{ cm}^2 .\end{aligned}$$

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Question. 23.

- (A) The base radius and height of a solid metal cylinder are 8 centimetres and 15 centimetres. By melting it and recasting, how many cones of base radius 6 centimetres and slant height 10 centimetres can be made ?

OR

- (B) A toy is in the shape of a square pyramid of base edge 18 centimetres and height 12 centimetres. What is the total cost of painting 500 such toys at 120 rupees per square metre ?

Elaborated Solution (A)

Given, radius of the cylinder
= 8cm.

Height = 15cm.

Cone radius = 6cm.

Slant height 10cm.

$$\begin{aligned}\text{Height of the cone} &= \sqrt{l^2 - r^2} \\ &= \sqrt{10^2 - 6^2} = \sqrt{100 - 36} \\ &= \sqrt{64} = 8\text{cm.}\end{aligned}$$

Number of cones =

$$\frac{\text{Volume of cylinder}}{\text{Volume of cone}}$$

$$\begin{aligned}\text{Volume of cylinder} &= \pi r^2 h \\ &= \pi \times 8 \times 8 \times 15 = 960\pi\end{aligned}$$

$$\text{Volume of the cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi \times 6 \times 6 \times 8 = 96\pi$$

\therefore Number of come

$$= 960\pi \div 96\pi = 10 .$$

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OR

Elaborated Solution (B)

Given, Base edge = 18cm

Height = 12c.

Cost Rs.120/-

Here find TSA of the

$$\text{Pyramid} = a^2 + 2al$$

$$= 18^2 + 2 \times 18 \times 15$$

$$= 324 + 540 = 864$$

$$\therefore \text{Total cast} = 300 \times 864 \times 120 \div 10000 = \text{Rs. } 5184/-.$$

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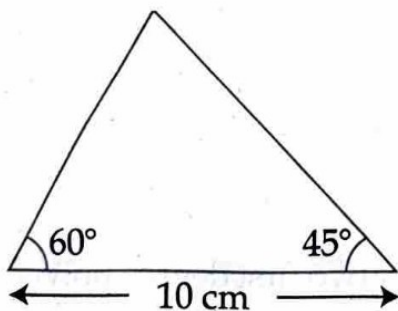
Question. 24.

(A) From the top of a mobile tower, two steel wires are stretched to either side and attached to the ground, making angles 70° and 48° . The distance between the feet of the wires is 40 metres.

- (i) Draw a rough sketch showing these details.
- (ii) What is the height of the tower?

OR

(B)

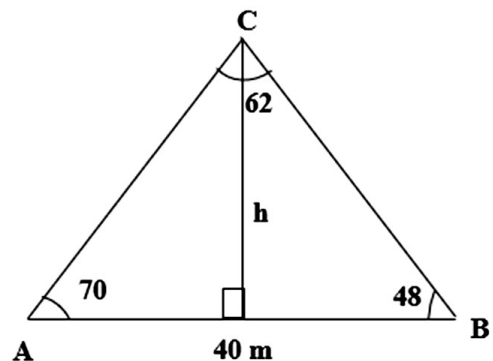


In the figure one side of the triangle is 10 centimetres and angles on that side are 60° and 45° . Calculate the area of the triangle.

Elaborated Solution (A)

(i)

$$(ii) \quad d = \frac{40}{\sin 62}$$



$$= \frac{40}{0.8829} = 45.3$$

$$\begin{aligned} AC &= 45.3 \times \sin 48. \\ &= 45.3 \times 0.7431 \\ &= 33.6. \end{aligned}$$

$$\sin 70 = \frac{h}{AC} = \frac{h}{33.6}$$

$$0.9397 = \frac{h}{33.6}$$

$$\begin{aligned} h &= 0.9397 \times 33.6 \\ &= 31.57 \end{aligned}$$

Hence the height of the tower = 31.57 m.

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OR

Elaborated Solution (B) .

Area of the triangle

$$AD = \frac{h}{\sqrt{3}}$$

$$BD = h$$

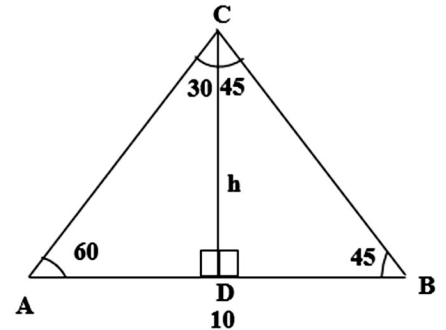
$$AB = 10.$$

$$\left(h + \frac{h}{\sqrt{3}} \right) = 10$$

$$\frac{h\sqrt{3+h}}{\sqrt{3}} = 10$$

$$h \left(\frac{\sqrt{3+1}}{\sqrt{3}} \right) = 10$$

$$h = \frac{10\sqrt{3}}{\sqrt{3+1}}$$



$$\begin{aligned}
 \text{Area} &= \frac{1}{2} \times 10 \times \frac{10\sqrt{3}}{\sqrt{3}+1} \\
 &= \frac{50\sqrt{3}}{\sqrt{3}+1} = \frac{50 \times 1.73}{1.73+1} \\
 &= \frac{86.5}{2.73} = 31.7 \text{ cm}^2 .
 \end{aligned}$$

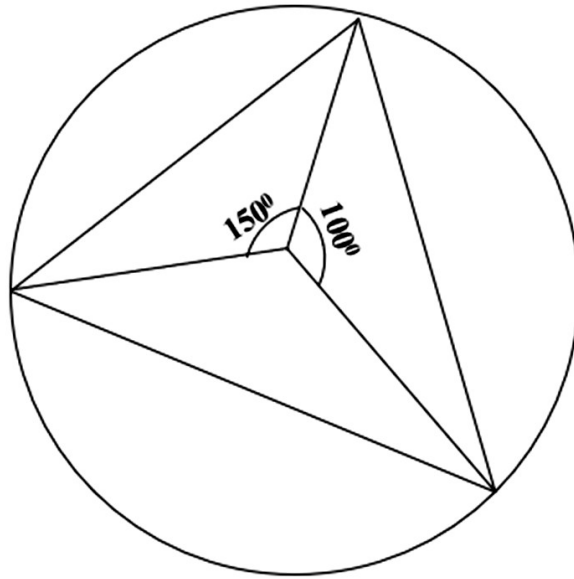
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Question. 25.

Draw a triangle of circum radius 3 centimetres and two of the angles 75° and 50° .

Elaborated Solution

Construction.



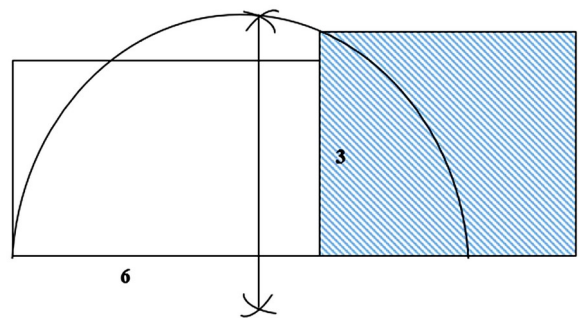
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Question. 26.

Draw a rectangle of area 18 square centimetres and a square of same area.

Elaborated Solution

Construction.

Given area
= 18 sq.cm.



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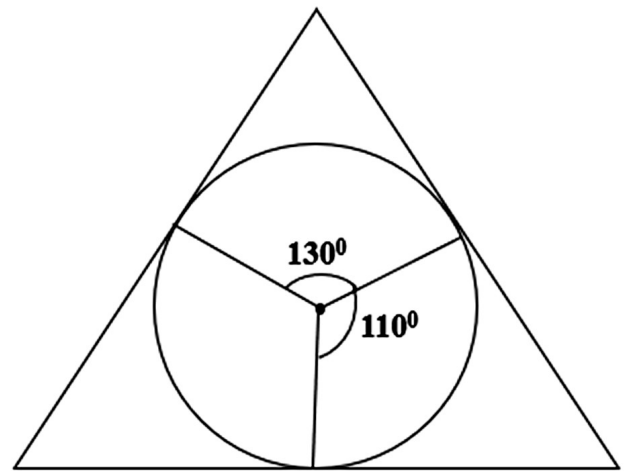
Question. 27.

Draw a circle of radius 2.5 centimetres. Draw a triangle of two angles 70° and 50° with its sides touches the circle.

Elaborated Solution

Construction.

Given, radius
= 2.05cm.



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