



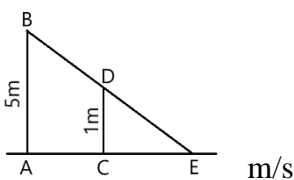
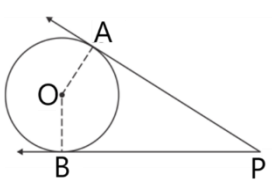
# BANGALORE SAHODAYA SCHOOLS COMPLEX ASSOCIATION PRE-BOARD EXAMINATION 1 (2024-2025)

## Grade X

### MARKING SCHEME – Set 2

**Subject : MATHEMATICS – STANDARD (041)**

1	A	2	6	A	50	11	A	0	16	A	1:2
2	C	$\left(\frac{7}{2}, \frac{9}{2}\right)$	7	C	$\frac{1}{7}$	12	A	$2 \times a_{19}$	17	B	$\sqrt{6} : \sqrt{\pi}$
3	B	$\sqrt{2}$	8	D	$(-1, -1)$	13	A	18.5	18	C	two cones and a cylinder
4	D	3.6 cm	9	C	only 6	14	A	$4/3$	19	A	
5	D	15 cm	10	C	any real no $>2$	15	A	0	20	A	

21(A)	<p>Q: Show that <math>12n</math> cannot end with the digit 0 or 5 for any natural number <math>n</math>.  ANS: If any number ends with the digit 0 or 5, it is divisible by 5.  If <math>12n</math> ends with the digit zero or five it should be divisible by 5.  It is possible if prime factorisation of <math>12^n</math> has the prime number 5.  <math>12 = 2 \times 2 \times 3 = 2^2 \times 3</math>  <math>12n = (2^2 \times 3)^n = 2^{2n} \times 3^n</math>  Since, there is no term containing 5.  Therefore, there is no value of <math>n \in \mathbb{N}</math> for which <math>12n</math> ends with the digit zero or five</p>	<p><math>\frac{1}{2}</math>  <math>\frac{1}{2}</math>  <math>\frac{1}{2}</math>  <math>\frac{1}{2}</math></p>
21(B)	<p>(OR)  Q: Determine the values of <math>p</math> and <math>q</math> so that the prime factorization of 2520 is expressible as <math>2^3 \times 3^p \times q \times 7</math>  ANS: Since, <math>2520 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 7</math>  <math>= 2^3 \times 3^2 \times 5 \times 7</math>  Therefore, <math>p = 2</math> and <math>q = 5</math></p>	<p>1  1</p>
22	<p>A girl of height 100 cm is walking away from the base of a lamp-post at a speed of 1.9 m/s. If the lamp is 5m above the ground, find the length of her shadow after 4 seconds.  ANS:  Height of the lamp-post = <math>AB = 5m</math>  Height of the girl = <math>CD = 100 \text{ cm} = 1 m</math>  Length of her shadow = <math>CE</math>  The distance covered by her in 4 sec with a speed of 1.9  <math>AC = \text{speed} \times \text{time} = 1.9 \times 4 = 7.6 m</math>  <math>\triangle ABE \sim \triangle CDE</math> [AA similarity criterion]  <math>\frac{AB}{CD} = \frac{AE}{CE}</math>  <math>\frac{5}{1} = \frac{7.6 + CE}{CE}</math>  <math>5CE = 7.6 + CE</math>  <math>4CE = 7.6</math>  <math>CE = 1.9m</math></p>	 <p><math>\frac{1}{2}</math>  <math>\frac{1}{2}</math>  <math>\frac{1}{2}</math>  <math>\frac{1}{2}</math></p>
23(A)	<p>PA and PB are tangent segments from an external point P, to a circle with centre O. Show that the quadrilateral AOBP is cyclic.</p> <p><b>Answer:</b>  Given: PA, PB are tangents from p to a circle with  To prove: Quadrilateral AOBP is cyclic</p>	 <p>point P, to a circle  cente O.</p>



	$2\tan^2 A + \sin^2 A - 1 = 2\tan^2 45^\circ + \sin^2 45^\circ - 1$ $= 2(1)^2 + \left(\frac{1}{\sqrt{2}}\right)^2 - 1$ $= 2 + \frac{1}{2} - 1 = \frac{3}{2}$	$\frac{1}{2}$  $\frac{1}{2}$
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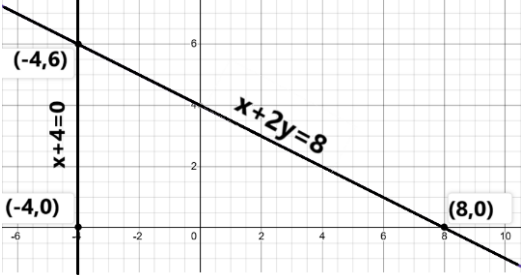
### Section C

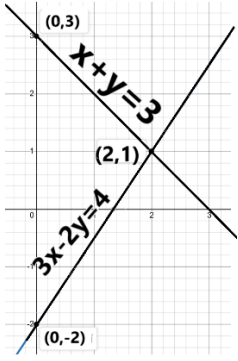
( Section C consists of 6 questions of 3 marks each )

26.	<p>Prove that <math>\sqrt{5}</math> is an irrational number</p> <p>This question can be proved with the help of the contradiction method. Let's assume that <math>\sqrt{5}</math> is a rational number. If <math>\sqrt{5}</math> is rational, that means it can be written in the form of <math>a/b</math>, where <math>a</math> and <math>b</math> integers that have no common factor other than 1 and <math>b \neq 0</math>. i.e., <math>a</math> and <math>b</math> are coprime numbers.</p> <p><math>\sqrt{5}/1 = a/b</math>  <math>\sqrt{5}b = a</math>          Squaring both sides,  <math>5b^2 = a^2 \dots (1)</math>          This means 5 divides <math>a^2</math>.          From this, 5 also divides <math>a</math>.          Then <math>a = 5c</math>, for some integer '<math>c</math>'.          On squaring, we get  <math>a^2 = 25c^2</math>          Put the value of <math>a^2</math> in equation (1).  <math>5b^2 = 25c^2</math>  <math>b^2 = 5c^2</math>          This means <math>b^2</math> is divisible by 5 and so <math>b</math> is also divisible by 5. Therefore, <math>a</math> and <math>b</math> have 5 as common factor. But this contradicts the fact that <math>a</math> and <math>b</math> are coprime. This contradiction has arisen because of our incorrect assumption that <math>\sqrt{5}</math> is a rational number. So, we conclude that <math>\sqrt{5}</math> is irrational.</p>	$\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$  1
27.	<p>ABC is a right triangle right-angles at B such that <math>BC = 6\text{cm}</math> and <math>AB = 8\text{cm}</math>. Find the radius of its incircle.</p> <p>Given, In right <math>\triangle ABC</math>, <math>\angle B = 90^\circ</math> And, <math>BC = 6\text{ cm}</math>, <math>AB = 8\text{ cm}</math>          Let <math>r</math> be the radius of incircle whose centre is <math>O</math> and touches the sides <math>AB</math>, <math>BC</math> and <math>CA</math> at <math>P</math>, <math>Q</math> and <math>R</math> respectively          Since, <math>AP</math> and <math>AR</math> are the tangents to the circle <math>AP = AR</math>          Similarly, <math>CR = CQ</math> and <math>BQ = BP</math> <math>OP</math> and <math>OQ</math> are radii of the circle  <math>OP \perp AB</math> and <math>OQ \perp BC</math> and <math>\angle B = 90^\circ</math> (given) Hence, <math>BPOQ</math> is a square          Thus, <math>BP = BQ = r</math> (sides of a square are equal) So, <math>AR = AP = AB - BP = 8 - r</math> and  <math>CR = CQ = BC - BQ = 6 - r</math>          But <math>AC^2 = AB^2 + BC^2</math> (By Pythagoras Theorem) <math>= (8)^2 + (6)^2 = 64 + 36 = 100 = (10)^2</math>          So, <math>AC = 10\text{ cm} \Rightarrow AR + CR = 10 \Rightarrow 8 - r + 6 - r = 10 \Rightarrow 14 - 2r = 10 \Rightarrow 2r = 14 - 10 = 4 \Rightarrow r = 2</math>          Therefore, the radius of the incircle = <math>2\text{ cm}</math></p>	1          1

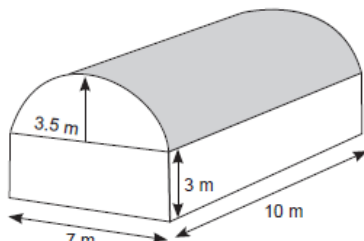
28.	<p>Two unbiased coins are tossed simultaneously. Find the probability of getting</p> <p>(a) Two heads      (b) at most one head      (c) atleast one head</p> <p>Solution :</p>	
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	<p>If two unbiased coins are tossed simultaneously, then the total outcomes may be HH, HT, TH, T T.</p> <p>No. of total outcomes =4</p> <p>(i) two heads</p> <p>favourable outcome for two heads are {HH}.</p> <p>No. of favourable outcomes =1</p> <p><math>P(\text{two heads}) = \frac{1}{4}</math></p> <p>(ii) favourable outcome for at most one head TH, HT, T T.</p> <p>No. of favourable outcomes =3</p> <p><math>\{P\}(\text{at most one head}) = \frac{3}{4}</math></p> <p>(iii) favourable outcome for at least one head are {TH}, {HT}, {HH}.</p> <p>No. of favourable outcomes =3</p> <p><math>\{P\}(\text{at least one head}) = \frac{3}{4}</math></p>	$\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$
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29.	<p>(A) Find the solution of <math>x + 4 = 0</math> and <math>x + 2y = 8</math> graphically. Find the area of the polygon obtained by these two lines and X-axis.</p> <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 20px;"> <tr><td colspan="3"><math>x + 2y = 8</math></td></tr> <tr><td>x</td><td>0</td><td>8</td></tr> <tr><td>y</td><td>4</td><td>0</td></tr> </table>  </div> <p>Area of the triangle = <math>\frac{\text{base} \times \text{height}}{2} = \frac{6 \times 12}{2} = 36 \text{ sq units}</math></p>	$x + 2y = 8$			x	0	8	y	4	0	$\frac{1}{2} + \frac{1}{2}$  $\frac{1}{2} + 1$  $\frac{1}{2}$
$x + 2y = 8$											
x	0	8									
y	4	0									

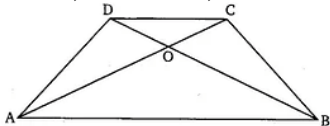
29 (B)	<p>Check if the pair of equations, <math>x + y = 3</math> and <math>3x - 2y = 4</math>, is consistent. If yes, find a solution of it graphically.</p> <p><math>\frac{a_1}{a_2} = \frac{1}{3}, \frac{b_1}{b_2} = \frac{-1}{2}, \frac{a_1}{a_2} \neq \frac{b_1}{b_2}</math></p> <p>So, the given is a pair of intersecting lines with a unique solution.</p> <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 20px;"> <tr><td colspan="3"><math>x + y = 3</math></td></tr> <tr><td>x</td><td>0</td><td>3</td></tr> <tr><td>y</td><td>3</td><td>0</td></tr> </table> <table border="1" style="margin-right: 20px;"> <tr><td colspan="3"><math>3x - 2y = 4</math></td></tr> <tr><td>x</td><td>0</td><td>2</td></tr> <tr><td>y</td><td>-2</td><td>1</td></tr> </table>  </div> <p>The solution is (2,1)</p>	$x + y = 3$			x	0	3	y	3	0	$3x - 2y = 4$			x	0	2	y	-2	1	$\frac{1}{2}$  $\frac{1}{2} + \frac{1}{2}$  $\frac{1}{2} + \frac{1}{2}$  $\frac{1}{2}$
$x + y = 3$																				
x	0	3																		
y	3	0																		
$3x - 2y = 4$																				
x	0	2																		
y	-2	1																		

30.	<p>(A) Prove that: <math>\frac{1}{\sec A - 1} + \frac{1}{\sec A + 1} = 2 \operatorname{cosec} A \cdot \cot A</math></p>	1  1
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<p>30 (B)</p>	<p> <math display="block">\text{LHS} = \frac{1}{\sec A - 1} + \frac{1}{\sec A + 1} = \frac{\sec A + 1 + \sec A - 1}{(\sec A - 1)(\sec A + 1)} = \frac{2 \sec A}{\sec^2 A - 1}</math> <math display="block">= \frac{2 \sec A}{\tan^2 A} = \frac{2 \times \frac{1}{\cos A}}{\frac{\sin^2 A}{\cos^2 A}} = \frac{2 \times 1}{\cos A} \times \frac{\cos^2 A}{\sin^2 A} = 2 \times \cos A \times \frac{1}{\sin A \cdot \sin A}</math> <math display="block">= 2 \cot A \cdot \operatorname{cosec} A = \text{RHS}</math> </p> <p>(OR)</p> <p>Prove that: <math>\sin^6 A + \cos^6 A = 1 - 3 \sin^2 A \cos^2 A</math>.</p> <p> <math display="block">\text{LHS} = \sin^6 A + \cos^6 A</math> <math display="block">= (\sin^2 A)^3 + (\cos^2 A)^3</math> <math display="block">= (\sin^2 A + \cos^2 A)^3 - 3 \sin^2 A \cdot \cos^2 A (\sin^2 A + \cos^2 A)</math> <math display="block">\{ \text{Using } a^3 + b^3 = (a + b)^3 - 3ab(a + b) \}</math> <math display="block">= 1^3 - 3 \sin^2 A \cdot \cos^2 A \times 1</math> <math display="block">= 1 - 3 \sin^2 A \cdot \cos^2 A = \text{RHS.}</math> </p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>
<p>31.</p>	<p>Shantha runs an industry in a shed which is in the shape of a cuboid surmounted by a half cylinder. The base of the shed is of dimensions 7 m × 10 m, and the height of the cuboidal portion is 3 m. Find the interior surface excluding the floor.</p> <div style="display: flex; align-items: center; justify-content: space-around;">  <div style="text-align: right;"> <p>shape of the area</p> <p>2 × area</p> </div> </div> <p>Interior surface of godown = area of four walls + of semicircles + curved area of cylindrical roof.</p> $= 2 \times 3 (7 + 10) + 2 \times \frac{\pi(3.5)^2}{2} + \frac{2 \times \pi(3.5) \times 10}{2}$ $= 102 + 38.5 + 110 = 250.5 \text{ m}^2$	<p>1/2</p> <p>1+1/2</p> <p>1</p>

## Section D

**(Section D consists of 4 questions of 5 marks each )**

32.	<p>(A) State and prove Basic Proportionality Theorem.</p> <p>Given, To prove, Construction - 1 mark          Appropriate Diagram - <math>\frac{1}{2}</math> M          Correct Proof – 3 <math>\frac{1}{2}</math> marks</p> <p style="text-align: center;"><b>(OR)</b></p>	5 marks
32 (B)	<p>(i) Prove that the diagonals of a trapezium divide each other proportionally.</p> <p>(ii) Using this result, find the value of x, if in the given figure, it is given that <math>AB \parallel DC</math> ; <math>OA = 3x-19</math> ; <math>OC = x-3</math> ; <math>OD = 4</math> and <math>OB = x-4</math></p> <div style="text-align: center;">  </div> <p>Since the diagonals of a trapezium divide each other proportionally.</p>	3 marks for the proof

	<div><div><math>\therefore AO/OC = BO/OD</math> <math>\Rightarrow 3x-19/x-3 = x-4 / 4</math> <math>\Rightarrow 4(3x - 19) = (x - 3) (x - 4)</math> <math>\Rightarrow 12x - 76 = x^2 - 7x + 12</math> <math>\Rightarrow x^2 - 19x + 88 = 0</math> <math>\Rightarrow x^2 - 11x - 8x + 88 = 0</math> <math>\Rightarrow (x - 8) (x - 11) = 0</math> <math>\Rightarrow x- 8 = 0 \text{ or } x - 11 = 0</math> <math>\Rightarrow x = 8 \text{ or } x = 11</math></div></div>	<div><div><math>\frac{1}{2} + \frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div></div>																
33.	<div><div>(A) A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.  ANS: Speed of the motor boat= 18 km/h Let the speed of the stream be x km/h Speed upstream = 18-x km/h Speed downstream = 18+x km/h ATQ, <math>\frac{24}{18-x} - \frac{24}{18+x} = 1</math> <math>\frac{24(18+x-18+x)}{324-x^2} = 1</math> <math>48x = 324 - x^2</math> <math>x^2 + 48x - 324 = 0</math> <math>x^2 + 48x - 324 = 0</math> <math>x^2 + 54x - 6x - 324 = 0</math> <math>x(x + 54) - 6(x + 54) = 0</math> <math>(x+54) (x-6)=0</math> <math>X=-54 \text{ or } x=6</math> <math>X=-54</math> is not admissible as speed cannot be negative. <math>\therefore x = 6</math> Speed of the stream= 6km/h</div></div>	<div><div><math>\frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div><div><math>1</math></div><div><math>\frac{1}{2}</math></div><div><math>1</math></div><div><math>\frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div></div>																
33(B)	<div><div>300 apples were distributed equally among a certain number of students. Had there been 10 more students, each would have received one apple less. Find the number of students. Total no. of apples= 300 Let the no. of students be x No of apples received by each student = <math>\frac{300}{x}</math> ATQ: <math>\frac{300}{x} - \frac{300}{x+10} = 1</math> <math>\frac{300(x+10-x)}{x^2+10x} = 1</math> <math>x^2 + 10x - 3000 = 0</math> <math>x^2 + 60x - 50x - 3000 = 0</math> <math>x(x + 60) - 50(x + 60) = 0</math> <math>(x + 60)(x - 50) = 0</math> <math>x = -60, x = 50</math> <math>x = -60</math> is not admissible as the no. of students can't be -ve <math>\therefore x = 50</math> The number of students = 50</div></div>	<div><div><math>\frac{1}{2}</math></div><div><math>\frac{1}{2}</math></div><div><math>1</math></div><div><math>\frac{1}{2}</math></div><div><math>1</math></div></div>																
34.	<div><div>The lengths of 40 leaves of a plant are measured correct to the nearest millimeter, and the data obtained is represented in the following table:<table><tr><td>Length (in mm)</td><td>118- 126</td><td>127- 135</td><td>136- 144</td><td>145- 153</td><td>154- 162</td><td>163- 171</td><td>172- 180</td></tr><tr><td>No. of leaves</td><td>3</td><td>5</td><td>9</td><td>12</td><td>5</td><td>4</td><td>2</td></tr></table></div></div>	Length (in mm)	118- 126	127- 135	136- 144	145- 153	154- 162	163- 171	172- 180	No. of leaves	3	5	9	12	5	4	2	
Length (in mm)	118- 126	127- 135	136- 144	145- 153	154- 162	163- 171	172- 180											
No. of leaves	3	5	9	12	5	4	2											

- (i) Find the median length of the leaves.  
(ii) Find the modal length of the leaves.

Length (in mm)	No. of leaves	Cf
117.5-126.5	3	3
126.5-135.5	5	8
135.5-144.5	9	17
144.5-153.5	12	29
153.5-162.5	5	34
162.5-171.5	4	38
171.5-180.5	2	40
$\Sigma f_i = 40$		

$$n=40$$

$$\frac{n}{2} = 20$$

Median class=144.5-153.5

$$l=144.5$$

$$h=9$$

$$\text{median} = l + \frac{\left(\frac{n}{2} - cf\right)}{f} \times h$$

$$= 144.5 + \frac{\left(\frac{40}{2} - 17\right)}{12} \times 9$$

$$= 144.5 + 2.5$$

$$= 147$$

$$\text{mode} = l + \frac{(f_1 - f_0)}{(2f_1 - f_0 - f_2)} \times h$$

$$= 144.5 + \frac{(12-9)}{(2(12)-9-5)} \times 9$$

$$= 144.5 + \frac{3}{10} \times 9$$

$$= 144.5 + 2.7$$

$$= 147.2$$

Table 1

$\frac{1}{2}$

$\frac{1}{2}$

$\frac{1}{2}$

1

$\frac{1}{2}$

1

35. A boy standing on a horizontal plane is flying a drone at a distance of 100 m from him at an elevation of  $30^\circ$ . A girl standing on the roof of 20 m high building, finds the angle of elevation of the drone to be  $45^\circ$ . The boy and the girl are on the opposite sides of the drone.

(i) Find the distance of the drone from the girl.

(ii) Find the distance of the boy from the foot of the building.

Ans:

Distance of the boy from the drone=AB=100m

Height of the building = CD=EF=20 m

In  $\triangle ABE$ ,  $\theta = 30^\circ$

$$\cos 30 = \frac{AE}{AB}$$

$$\frac{\sqrt{3}}{2} = \frac{AE}{100}$$

$$AE = 50\sqrt{3} \text{ m}$$

$$\sin 30 = \frac{BE}{AB}$$

$$\frac{1}{2} = \frac{BE}{100}$$

$$BE = 50 \text{ m.}$$

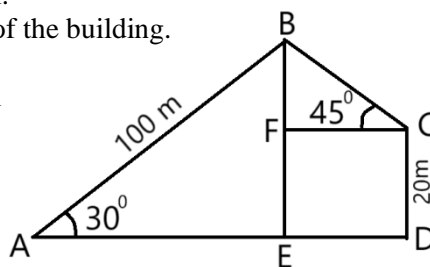


Fig 1

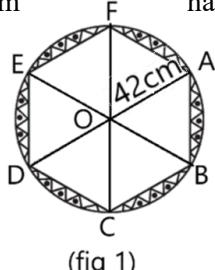
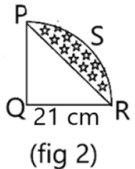
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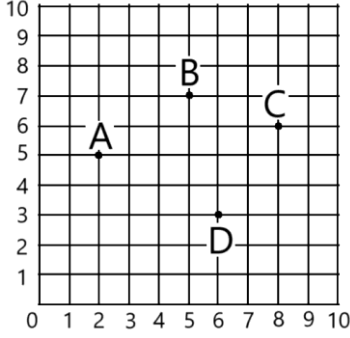
$\frac{1}{2}$

36.	A contract on construction job specifies a penalty for each day for delay of completion of work beyond a certain date. The penalty for the $n^{\text{th}}$ day is calculated using an expression $50(3 + n)$ . Based on this information, answer the following questions.	
(i)	Write the first 4 terms of the AP representing the above situation and write its common difference. ANS: AP: 200, 250, 300, 350.... $d = 50$	$\frac{1}{2}$ $\frac{1}{2}$
(ii)	Find the ratio of the penalty amount for the first day to the penalty amount for the 30 <sup>th</sup> day. ANS: $a = 200$ $a_{30} = a + 29d = 200 + 1450 = 1650$ $\frac{a_1}{a_{30}} = \frac{200}{1650} = \frac{4}{33}$	$\frac{1}{2}$ $\frac{1}{2}$
(iii)	The construction is delayed by 30 days altogether. If the construction company has paid the penalty amount for the first 15 days, how much do they need to pay for the remaining 15 days? ANS: The amount to be paid = $s_{30} - s_{15}$ $\frac{30}{2} [200 + 1650] - \frac{15}{2} [2(200) + 14(50)]$ $= 15[1850] - \frac{15}{2} [1100]$ $= 15(1850 - 550)$ $= 15 \times 1300$ $= 19500 \text{ rupees}$  (OR)	$\frac{1}{2}$ $\frac{1}{2}$          1



	<p>Which term of the AP:121,117,113, ... is its first negative term?</p> <p>ANS: <math>a=121</math>, <math>d=-4</math></p> <p>if <math>a_n</math> is negative,</p> $a + (n - 1)d < 0$ $121 + (n - 1)(-4) < 0$ $121 - 4n + 4 < 0$ $125 - 4n < 0$ $125 < 4n$ $125/4 < n$ $31.25 < n$ <p>Negative terms start from 32<sup>nd</sup> term</p> <p><math>\therefore</math> the first negative term is <math>a_{32}</math>.</p>	<p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2}</math></p>
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37.	<p>In order to encourage handicrafts, Arushi's mother buys articles from exhibitions. She bought crochet laces to attach to table cloths. shows a regular hexagon. After attaching the crochet lace, the is circular in shape with radius 42 cm.</p> <p>(fig 2) shows an isosceles right triangle, right angled at Q. attaching the crochet lace, it is in the shape of a sector of cm. Observe the figures and answer the questions given</p> <p>(consider <math>\sqrt{2} = 1.4</math>, <math>\sqrt{3} = 1.7</math>, <math>\pi = \frac{22}{7}</math>)</p> <p>(i) Find the area of <math>\Delta AOB</math> to the nearest <math>\text{cm}^2</math>. (1)</p> <p>(i) Find the area of sector AOB. (1)</p> <p>(iii) Find the cost of the lace in fig(i) if it costs 50 paise per <math>\text{cm}^2</math>. (2)</p> <p>(OR)</p> <p>Find the perimeter of the segment PSR in fig (ii). (2)</p>	<p>handicrafts</p> <p>(Fig i) table cloth</p> <p>After radius 14 below.</p>  <p>(fig 1)</p>  <p>(fig 2)</p>	
(i)	$ar(\Delta AOB) = \frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} (42)^2 = 441\sqrt{3}\text{cm}^2 = 749.7\text{cm}^2 = 750\text{cm}^2$		1
(ii)	$ar(\text{sector } AOB) = \frac{\theta}{360} \pi r^2 = \frac{60}{360} \pi (42)^2 = 924\text{cm}^2$		1
(iii)	<p><math>ar \text{ of segment } = 924 - 750 = 174\text{cm}^2</math></p> <p>cost of lace = <math>6 \times 174 \times 50 \text{ paise} = 6 \times 174 \times \frac{1}{2} \text{ rupees} = 522 \text{ rupees}</math></p> <p>(OR)</p> <p><math>PR = \sqrt{21^2 + 21^2} = 21\sqrt{2} = 29.4\text{cm}</math></p> <p>Arc length of PR = <math>\frac{\theta}{360} \times 2\pi r = \frac{90}{360} \times 2 \times \frac{22}{7} \times 21 = 33\text{cm}</math></p> <p>Perimeter if segent PSR = <math>29.4 + 33 = 62.4 \text{ cm}</math></p>		1
			$\frac{1}{2}$
			1
			$\frac{1}{2}$

38.	<p>Students of a school are standing in rows and in their school playground to celebrate their sports day. A, B, C and D are the positions of students as shown in the figure.</p> <p>Based on the above, answer the following</p>		<p>columns</p> <p>annual</p> <p>four</p> <p>questions:</p>	
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(i)	<p>The Victory stand for prize distribution will be placed at the mid-point of the straight line between A and C. Find the coordinates of the victory stand. (1)</p> <p>ANS: A ( 2,5) B (5,7) C (8,6) D (6,3)</p> <p>Midpoint of AC, ie coordinates of Victory stand = ( 5, 11/2 ) or ( 5, 5.5)</p>	<p>1/2</p> <p>1/2</p>
(ii)	<p>If B has to run from his position to the victory stand, what is the distance he will cover? (1)</p> <p>ANS: Distance between B and Victory Stand = <math>\sqrt{(1.5)^2} = 1.5</math> units</p>	1
(iii)	<p>Using distance formula, show that the students A, B and C are not standing in a straight line. (2)</p> <p>Find AB, BC, AC and check if the sum of any two sides is equal to the third – Test for collinearity. <math>AB = \sqrt{13}</math> ; <math>BC = \sqrt{10}</math> ; <math>AC = \sqrt{37}</math> ;</p> <p>the above test is not valid hence it is clear that they are not standing in the same line. (OR)</p> <p>If a point P divides the line segment AD in the ratio 1 : 2, then find the coordinates of P. (2)</p> <p>If P divides the line segment AD in the ratio 1: 2, then using section formula we get P = (10/3, 13/ 3)</p>	<p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1</p> <p>1</p>