



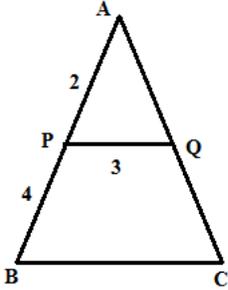
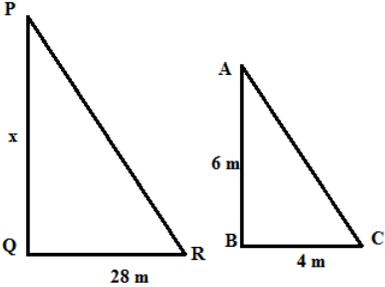
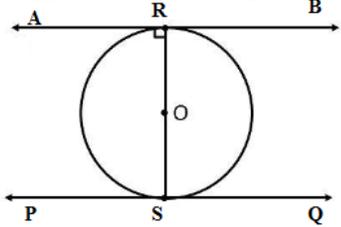
7.	Which term of an AP 21, 42, 63, 84, ... is 210 ?  (a) 12 <sup>th</sup> (b) 11 <sup>th</sup> (c) 10 <sup>th</sup> (d) 9 <sup>th</sup>	
<b>Answer</b>	(c) 10 <sup>th</sup>	1
8.	The distance of the point (3, 5) from the x-axis is :  (a) 3 (b) 4 (c) 5 (d) $\sqrt{31}$	
<b>Answer</b>	(c) 5	1
9.	If in two triangles ABC and PQR, $\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}$ , then :  (a) $\Delta PQR \sim \Delta CAB$ (b) $\Delta PQR \sim \Delta ABC$ (c) $\Delta CBA \sim \Delta PQR$ (d) $\Delta BCA \sim \Delta PQR$	
<b>Answer</b>	(a) $\Delta PQR \sim \Delta CAB$	1
10.	The line segments joining the mid-points of the adjacent sides of a quadrilateral form a :  (a) rectangle (b) square (c) rhombus (d) parallelogram	
<b>Answer</b>	(d) Parallelogram	1
11.	From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle are drawn. The length of each tangent PQ or PR is :  (a) 13 cm (b) 12 cm (c) 10 cm (d) $\sqrt{194}$ cm	
<b>Answer</b>	(b) 12cm	1

12.	If radii of two concentric circles are 4 cm and 5 cm, then length of each chord of the bigger circle which is tangent to the smaller circle, is : (a) 1 cm (b) 3 cm (c) 9 cm (d) 6 cm	
<b>Answer</b>	(d) 6cm	1
13.	If $\cos A = \frac{\sqrt{3}}{2}$ , then the value of $\cot A$ is : (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c) $\frac{1}{2}$ (d) 1	
<b>Answer</b>	(a) $\sqrt{3}$	1
14.	If $\cot \theta + \tan \theta = 1$ , then the value of $\cot^2 \theta + \tan^2 \theta$ is : (a) 1 (b) -1 (c) 3 (d) -3	
<b>Answer</b>	(b) -1 <b>Note:</b> $(\cot\theta + \tan\theta)^2 = 1 \Rightarrow \cot^2\theta + \tan^2\theta = -1$ , which is not possible as the sum of the squares can't be negative; incorrect question, hence option (a) or option (c) may also be given full credit.	1
15.	A ladder 10 m long just reaches the top of a vertical wall. If the ladder makes an angle of $30^\circ$ with the ground, then the height of the wall is : (a) $10\sqrt{3}$ m (b) 5 m (c) 10 m (d) $5\sqrt{3}$ m	
<b>Answer</b>	(b) 5m	1
16.	A sector of a circle with central angle $60^\circ$ has an area $231 \text{ cm}^2$ . The radius of the circle is : (a) 14 cm (b) 7 cm (c) 21 cm (d) 28 cm	
<b>Answer</b>	(c) 21cm.	1

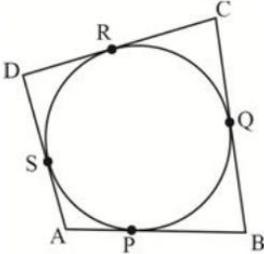
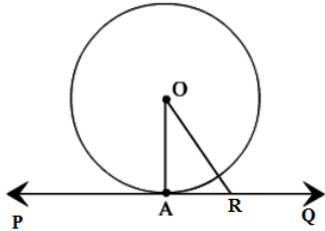
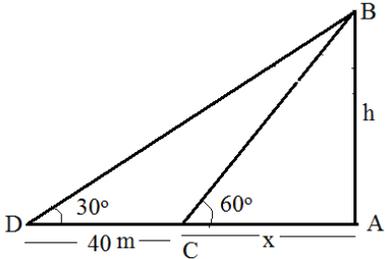
17.	<p>A solid hemisphere of radius <math>r</math> is surmounted by a solid cone of same base radius as that of the hemisphere and height equal to its diameter. The volume of this combined solid is :</p> <p>(a) <math>\pi r^3</math></p> <p>(b) <math>\frac{2}{3} \pi r^3</math></p> <p>(c) <math>\frac{1}{3} \pi r^3</math></p> <p>(d) <math>\frac{4}{3} \pi r^3</math></p>	
<b>Answer</b>	(d) $\frac{4}{3} \pi r^3$	1
18.	<p>If the volumes of two spheres are in the ratio 125 : 64, then the ratio of their surface areas is :</p> <p>(a) 5 : 4</p> <p>(b) 4 : 5</p> <p>(c) 16 : 25</p> <p>(d) 25 : 16</p>	
<b>Answer</b>	(d) 25:16	1
	<p><i>Questions number 19 and 20 are Assertion and Reason based questions carrying 1 mark each. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the codes (a), (b), (c) and (d) as given below.</i></p> <p>(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).</p> <p>(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is <b>not</b> the correct explanation of the Assertion (A).</p> <p>(c) Assertion (A) is true and Reason (R) is false.</p> <p>(d) Assertion (A) is false and Reason (R) is true.</p>	
19.	<p><b>Assertion (A) :</b> The mean of first ten natural numbers is 5.5.</p> <p><b>Reason (R) :</b> The sum of first <math>n</math> natural numbers is <math>\frac{n(n+1)}{2}</math>.</p>	
<b>Answer</b>	(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)	1
20.	<p><b>Assertion (A) :</b> The probability of getting a doublet in a single throw of a pair of dice is <math>\frac{1}{6}</math>.</p> <p><b>Reason (R) :</b> For any event A, <math>0 \leq P(A) \leq 1</math>.</p>	
<b>Answer</b>	(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is <b>not</b> the correct explanation of Assertion (A)	1

<b>SECTION B</b>		
21.	Find the HCF and the LCM of 36 and 60, using prime factorization method.	
<b>Solution:</b>	$36 = 2 \times 2 \times 3 \times 3$ $60 = 2 \times 2 \times 3 \times 5$ HCF = $2 \times 2 \times 3 = 12$ LCM = $2 \times 2 \times 3 \times 3 \times 5 = 180$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
22.	Find the zeroes of the polynomial $p(x) = x^2 - 25$ and verify the relation between the zeroes and the coefficients.	
<b>Solution:</b>	Zeroes of the polynomial are 5 & -5 $a=1, b=0, c=-25$ Sum of zeroes = $0 = \frac{-b}{a}$ Product of zeroes = $-25 = \frac{c}{a}$	1 $\frac{1}{2}$ $\frac{1}{2}$
23.	(a) Find the positive value of y for which the distance between the points A(3, -1) and B(11, y) is 10 units.	
<b>Solution:</b>	$AB=10 \Rightarrow \sqrt{(11-3)^2 + (y+1)^2} = 10$ $\Rightarrow (y+1)^2 = 36 \Rightarrow y+1 = \pm 6$ $\Rightarrow y = 5$ or $y = -7$ (rejected) $\Rightarrow$ Positive value of y is 5	$\frac{1}{2}$ 1 $\frac{1}{2}$
<b>OR</b>		
	(b) Find the ratio in which y-axis divides the line segment joining the points A(5, -6) and B(-1, -4).	
<b>Solution:</b>	Let the ratio be k : 1 <div style="text-align: center;"> <math>\xrightarrow{\quad k \quad \quad \quad 1 \quad \quad \quad}</math>  A(5, -6)                      P(0, y)                      B(-1, -4) </div> Point P is $\left( \frac{-k+5}{k+1}, \frac{-4k-6}{k+1} \right)$ P lies on y-axis so $x=0$ $\therefore \frac{-k+5}{k+1} = 0$ $\Rightarrow k=5$ $\therefore$ P divides AB in the ratio 5 : 1	$1 + \frac{1}{2}$ $\frac{1}{2}$
24.	(a) Prove that :	
	$1 - \frac{\sin^2 A}{1 + \cos A} = \cos A$	
<b>Solution:</b>	LHS = $1 - \frac{\sin^2 A}{1 + \cos A} = 1 - \frac{1 - \cos^2 A}{1 + \cos A}$ $= 1 - (1 - \cos A) = \cos A$	1 1

	<b>OR</b>	
	(b) Prove that : $\frac{1 - \cot^2 \theta}{1 + \cot^2 \theta} + 2 \cos^2 \theta = 1$	
<b>Solution:</b>	LHS = $\frac{1 - \cot^2 \theta}{1 + \cot^2 \theta} + 2 \cos^2 \theta = \frac{\sin^2 \theta - \cos^2 \theta}{\sin^2 \theta + \cos^2 \theta} + 2 \cos^2 \theta$ $= \sin^2 \theta - \cos^2 \theta + 2 \cos^2 \theta = \sin^2 \theta + \cos^2 \theta = 1 = \text{RHS}$	1 1
25.	Find the value of $\frac{3}{4} \tan^2 30^\circ - 3 \sin^2 60^\circ + \frac{1}{\sin^2 45^\circ}$ .	
<b>Solution:</b>	$\frac{3}{4} \tan^2 30^\circ - 3 \sin^2 60^\circ + \frac{1}{\sin^2 45^\circ} = \frac{3}{4} \left( \frac{1}{\sqrt{3}} \right)^2 - 3 \left( \frac{\sqrt{3}}{2} \right)^2 + \frac{1}{\left( \frac{1}{\sqrt{2}} \right)^2}$ $= 0$	1½  ½
<b>SECTION C</b>		
26.	Prove that $3 + 2\sqrt{2}$ is an irrational number, given that $\sqrt{2}$ is irrational.	
<b>Solution:</b>	Let us assume $3 + 2\sqrt{2}$ is rational number. $\Rightarrow 3 + 2\sqrt{2} = \frac{p}{q}$ , where p and q are integers and $q \neq 0$ $\Rightarrow \sqrt{2} = \frac{p - 3q}{2q}$ Here, RHS is a rational number whereas LHS is an irrational number. $\therefore$ our assumption is wrong Hence, $3 + 2\sqrt{2}$ is an irrational number	1 1 1
27.	Solve the following pair of equations : $x - y + 1 = 0$ ; $3x + 2y - 12 = 0$	
<b>Solution:</b>	Eliminating y and getting $x = 2$ Putting the value of y in any one equation and getting $y = 3$	1½ 1½
28.	Find a relation between x and y such that the point P(x, y) is equidistant from the points A(0, 3) and B(-2, 1).	
<b>Solution:</b>	$PA = PB \Rightarrow \sqrt{(x-0)^2 + (y-3)^2} = \sqrt{(x+2)^2 + (y-1)^2}$ $\Rightarrow x + y = 1$	1½ 1½
29.	P and Q are points on the sides AB and AC respectively of $\Delta ABC$ such that $PQ \parallel BC$ . If $AP = 2$ cm, $PB = 4$ cm and $PQ = 3$ cm, then find the length of BC.	

<p><b>Solution:</b></p>	 <p> <math>\therefore PQ \parallel BC</math>  <math>\therefore \triangle APQ \sim \triangle ABC</math> (By AA similarity criteria)  <math>\Rightarrow \frac{AP}{AB} = \frac{PQ}{BC}</math>  <math>\Rightarrow \frac{2}{6} = \frac{3}{BC} \Rightarrow BC = 9 \text{ cm}</math> </p>	<p>1</p> <p>1</p> <p>1</p>
<p>30.</p>	<p>(a) A vertical pole of length 6 m casts a shadow 4 m long on the ground and at the same time a tower casts a shadow 28 m long on the ground. Find the height of the tower.</p>	
<p><b>Solution:</b></p>	 <p> <math>\triangle ABC \sim \triangle PQR</math> (By AA similarity criteria)  <math>\Rightarrow \frac{AB}{PQ} = \frac{BC}{QR}</math>  <math>\Rightarrow \frac{6}{x} = \frac{4}{28} \Rightarrow x = 42 \text{ m}</math>  <math>\therefore</math> Height of the tower is 42 m </p>	<p>1</p> <p>1</p> <p>1</p>
	<p style="text-align: center;"><b>OR</b></p> <p>(b) Prove that the tangents drawn at the ends of a diameter of a circle are parallel to each other.</p>	
<p><b>Solution:</b></p>	 <p> Let AB &amp; PQ are tangents at the end points of the diameter RS  <math>\therefore OS \perp PQ</math> and <math>OR \perp AB</math> (<math>\because</math> Tangent to a circle is perpendicular to the radius through the point of contact)  <math>\therefore \angle ARS = \angle QSR = 90^\circ</math>  <math>\therefore AB \parallel PQ</math> (If alternate interior angles formed by a transversal with two lines are equal, then the lines are parallel) </p>	<p>1</p> <p>1</p> <p>1</p>

31.	(a) The length of the minute-hand of a clock is 14 cm. Find the area swept by the minute-hand in 15 minutes.	
<b>Solution:</b>	Angle made by the minute hand = $90^\circ$ and $r = 14$ cm Required Area = $\frac{\theta}{360} \times \pi \times r^2$ $= \frac{90}{360} \times \frac{22}{7} \times 14^2$ $= 154 \text{ cm}^2$	$\frac{1}{2} + \frac{1}{2}$  1½  $\frac{1}{2}$
	<b>OR</b>	
	(b) 3 cubes each of volume $64 \text{ cm}^3$ are joined end-to-end to form a cuboid. Find the surface area of this cuboid.	
<b>Solution:</b>	Side of each cube is = 4 cm $l = 12 \text{ cm}$ , $b = 4 \text{ cm}$ , $h = 4 \text{ cm}$ Surface Area of the cuboid = $2(l \times b + b \times h + h \times l)$ $= 2(12 \times 4 + 4 \times 4 + 4 \times 12)$ $= 224 \text{ cm}^2$	1 $\frac{1}{2}$  1 $\frac{1}{2}$
	<b>SECTION D</b>	
32.	(a) Find the roots of the equation :  $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}, x \neq -4, 7$	
<b>Solution:</b>	$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30} \Rightarrow x^2 - 3x + 2 = 0$ $\Rightarrow (x-1)(x-2) = 0$ $\Rightarrow x = 1, 2$	2  2 $\frac{1}{2} + \frac{1}{2}$
	<b>OR</b>	
	(b) A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.	
<b>Solution:</b>	Let the Speed of the train be $x$ km/h $\frac{360}{x} - \frac{360}{x+5} = 1$ $\Rightarrow x^2 + 5x - 1800 = 0$ $\Rightarrow (x+45)(x-40) = 0$ $\Rightarrow x = -45, 40$ Speed of train is 40 km/h (Rejecting -45)	1½  1½ 1 $\frac{1}{2}$ $\frac{1}{2}$
33.	(a) A quadrilateral ABCD is drawn to circumscribe a circle. Prove that $AB + CD = AD + BC$ .	

<p><b>Solution:</b></p>	<div style="text-align: right;">  </div> <p>∴ Length of tangents drawn from an exterior point to a circle are equal</p> <p>∴ AP = AS PB = BQ RC = QC DR = DS</p> <p>On adding the above four equations, we get AP + PB + RC + DR = AS + BQ + QC + DS ⇒ AB + DC = AD + BC</p>	<p style="text-align: right;">2 2 1</p>
<p>33.</p>	<p style="text-align: center;"><b>OR</b></p> <p>(b) Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.</p>	
<p><b>Solution:</b></p>	<div style="text-align: right;">  </div> <p><b>Given:</b> Circle with center 'O' and PQ is the tangent to the circle at the point A</p> <p><b>To Prove:</b> OA ⊥ PQ</p> <p><b>Construction:</b> Take a point 'R' other than A on PQ and join OR</p> <p><b>Proof:</b> Clearly the point R lies outside the circle otherwise PQ will become the Secant.</p> <p>∴ OR &gt; radius of the circle ⇒ OR &gt; OA ⇒ OA &lt; OR ∴ OA is the shortest distance from O to the tangent PQ ∴ OA ⊥ PQ (Shortest distance is the perpendicular distance)</p>	<p style="text-align: right;">1½ 1½ 1½ ½</p>
<p>34.</p>	<p>The shadow of a tower standing on a level ground is found to be 40 m longer when the sun's altitude is 30° than when it is 60°. Find the height of the tower.</p>	
<p><b>Solution:</b></p>	<p>Let AB be the tower</p> <p>In ΔBAC</p> $\tan 60^\circ = \frac{h}{x} \Rightarrow h = x\sqrt{3} \text{-----(i)}$ <p>In ΔBAD</p> $\tan 30^\circ = \frac{h}{x+40} \Rightarrow x+40 = h\sqrt{3} \text{----(ii)}$ <p>From (i) and (ii), we get x = 20 m</p> <p>∴ h = 20√3 m</p> <p>∴ Height of the tower = 20√3 m</p> <div style="text-align: right;">  </div>	<p style="text-align: right;">2 2 1</p>

35.	Find the mode and the mean for the following data :															
	<table border="1"> <thead> <tr> <th>Class</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1 – 4</td> <td>6</td> </tr> <tr> <td>4 – 7</td> <td>30</td> </tr> <tr> <td>7 – 10</td> <td>40</td> </tr> <tr> <td>10 – 13</td> <td>16</td> </tr> <tr> <td>13 – 16</td> <td>4</td> </tr> <tr> <td>16 – 19</td> <td>4</td> </tr> </tbody> </table>	Class	Frequency	1 – 4	6	4 – 7	30	7 – 10	40	10 – 13	16	13 – 16	4	16 – 19	4	
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1 – 4	6															
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Solution:	<table border="1"> <thead> <tr> <th>Class</th> <th><math>f_i</math></th> <th><math>x_i</math></th> <th><math>u_i = \frac{x_i - 11.5}{3}</math></th> <th><math>f_i u_i</math></th> </tr> </thead> <tbody> <tr> <td>1-4</td> <td>6</td> <td>2.5</td> <td>-3</td> <td>-18</td> </tr> <tr> <td>4-7</td> <td>30</td> <td>5.5</td> <td>-2</td> <td>-60</td> </tr> <tr> <td>7-10</td> <td>40</td> <td>8.5</td> <td>-1</td> <td>-40</td> </tr> <tr> <td>10-13</td> <td>16</td> <td>11.5 = a</td> <td>0</td> <td>0</td> </tr> <tr> <td>13-16</td> <td>4</td> <td>14.5</td> <td>1</td> <td>4</td> </tr> <tr> <td>16-19</td> <td>4</td> <td>17.5</td> <td>2</td> <td>8</td> </tr> <tr> <td>Total</td> <td>100</td> <td></td> <td></td> <td>-106</td> </tr> </tbody> </table>	Class	$f_i$	$x_i$	$u_i = \frac{x_i - 11.5}{3}$	$f_i u_i$	1-4	6	2.5	-3	-18	4-7	30	5.5	-2	-60	7-10	40	8.5	-1	-40	10-13	16	11.5 = a	0	0	13-16	4	14.5	1	4	16-19	4	17.5	2	8	Total	100			-106	<p>1½ for correct table</p>
	Class	$f_i$	$x_i$	$u_i = \frac{x_i - 11.5}{3}$	$f_i u_i$																																					
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Total	100			-106																																						
<p>Mean = <math>a + \frac{\sum f_i u_i}{\sum f_i} \times h</math></p> $= 11.5 + \frac{-106}{100} \times 3$ $= 8.32$ <p>Mode = <math>l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h</math></p> $= 7 + \frac{40 - 30}{2 \times 40 - 30 - 16} \times 3$ $= 7.88$	<p>1</p> <p>½</p> <p>1½ ½</p>																																									

### SECTION E

36.	<p>Nikhil started saving money for his new project. He started saving ₹ 240 in the first month, ₹ 300 in the second month ₹ 360 in the third month and so on. He continues to save in this manner for quite some time.</p> <p>Based on the above, answer the following questions :</p> <p>(i) Are the numbers representing his savings in AP ? If so, write the first term (a) and the common difference (d).</p> <p>(ii) In which month will he save ₹ 660 ?</p>	
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	<p>(iii) (a) What amount will he save in the 15<sup>th</sup> month ?</p> <p style="text-align: center;"><b>OR</b></p> <p>(b) How much money he will accumulate after 10 months ?</p>	
<b>Solution:</b>	<p>(i) Yes these numbers are in AP First term, <math>a = 240</math> and common difference, <math>d = 60</math></p> <p>(ii) <math>a_n = a + (n-1)d</math> <math>660 = 240 + (n-1)60 \Rightarrow n = 8</math> <math>\therefore</math> Nikhil will save ₹660 in the 8<sup>th</sup> month</p> <p>(iii) (a) <math>a_{15} = a + 14d</math> <math>= 240 + (15-1) \times 60</math> <math>= 1080</math> <math>\therefore</math> Nikhil will save ₹1080 in 15<sup>th</sup> month</p> <p style="text-align: center;"><b>OR</b></p> <p>(iii) (b) <math>S_n = \frac{n}{2}(2a + (n-1)d)</math> <math>S_{10} = \frac{10}{2}(2 \times 240 + (10-1) \times 60)</math> <math>= 5100</math> <math>\therefore</math> Nikhil will save ₹5100 in 10 months</p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>1\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>1\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>
37.	<p>The great Stupa at Sanchi is one of the oldest stone structures in India which was originally made by Emperor Ashoka. It is basically a big hemispherical dome with a cuboidal structure mounted on it.</p> <p>Based on the above, answer the following questions :</p> <p>(i) What is the volume of the hemispherical dome, if its height is 21 m ? (use <math>\pi = \frac{22}{7}</math>)</p> <p>(ii) What is the area of plastic cloth required to cover the hemispherical dome, if radius of its base is 14 m ?</p> <p>(iii) (a) If the dimensions of the cuboidal top are 8 m <math>\times</math> 6 m <math>\times</math> 4 m, then what is the surface area of this cuboidal top ?</p> <p style="text-align: center;"><b>OR</b></p> <p>(b) What is the volume of the cuboidal top of dimensions given in part (iii) ?</p>	
<b>Solution:</b>	<p>(i) Volume of the hemispherical dome = <math>\frac{2}{3} \pi r^3</math> <math>= \frac{2}{3} \times \frac{22}{7} \times 21^3</math> <math>= 19404 \text{ m}^3</math></p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>

	<p><b>(ii)</b> Area of the plastic cloth = <math>2\pi r^2</math>  <math>= 2 \times \frac{22}{7} \times 14^2</math>  <math>= 1232 \text{ m}^2</math></p> <p><b>(iii) (a)</b> Surface area of the cuboidal structure  <math>= 2(l \times b + b \times h + h \times l)</math>  <math>= 2(8 \times 6 + 6 \times 4 + 4 \times 8)</math>  <math>= 208 \text{ m}^2</math></p> <p style="text-align: center;"><b>OR</b></p> <p><b>(iii) (b)</b> Volume of the cuboidal structure  <math>= l \times b \times h</math>  <math>= 8 \times 6 \times 4</math>  <math>= 192 \text{ m}^3</math></p>	<p style="text-align: right;">½ ½  1 1   1 1</p>
38.	<p>There are 60 students in class X of a school of which 45 are girls and 15 are boys. The class teacher has to select one student as a monitor. She writes the name of each student on a separate card and then mixes these cards after putting them in a box. She then draws a card at random from the box.</p> <p>Based on the above, answer the following questions :</p> <p>(i) What is the probability that the name on the selected card is of a girl student ?</p> <p>(ii) What is the probability that the name on the selected card is of a boy student ?</p> <p>(iii) (a) If there is one name Shivani, written on a card, what is the probability of her selection ?</p> <p style="text-align: center;"><b>OR</b></p> <p>(b) What is the probability that one out of Ravi, Mahesh or Vikas is selected ?</p>	
<b>Solution:</b>	<p><b>(i)</b> <math>P(\text{Name on the selected card is of a girl student}) = \frac{45}{60} = \frac{3}{4}</math></p> <p><b>(ii)</b> <math>P(\text{Name on the selected card is of a boy student}) = \frac{15}{60} = \frac{1}{4}</math></p> <p><b>(iii) (a)</b> <math>P(\text{Name on the selected card is Shivani}) = \frac{1}{60}</math></p> <p style="text-align: center;"><b>OR</b></p> <p><b>(iii) (b)</b> <math>P(\text{Ravi, Mahesh or Vikas is selected}) = \frac{3}{60} = \frac{1}{20}</math></p>	<p style="text-align: right;">1  1  2  2</p>