

Class – X

Mathematics-Basic (241)

Marking Scheme-SQP 2019-20

Max. Marks: 80

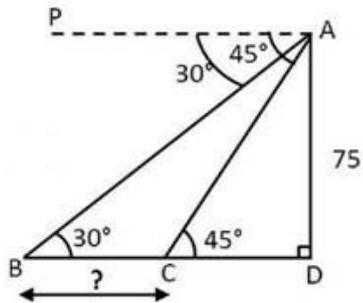
Duration: 3 hrs.

1.	(b) 42	(1)
2.	(a) $2 \text{ Mean} = 3 \text{ Median} - \text{Mode}$	(1)
3.	(d) 70°	(1)
4.	(b) $5^2 \times 13$	(1)
5.	(a) $\frac{1}{26}$	(1)
6.	(d) 4	(1)
7.	(c) 5.010010001..	(1)
8.	(c) 3	(1)
9.	(b) 5 units	(1)
10.	(b) (- 3, 5)	(1)
11.	(2, 3)	(1)
12.	2 OR 1	(1)
13.	1	(1)
14.	0	(1)
15.	4:9	(1)
16.	$\sin P = 1/\sqrt{2}$	(1)

	OR	
	cosec A = 17/15	
17.	Area of quadrant = $\frac{1}{4} \times \frac{22}{7} \times r^2 = 38.5$ (use $\pi = \frac{22}{7}$) $\Rightarrow r = 7\text{cm}$ \therefore diameter = 14 cm	$(\frac{1}{2})$ $(\frac{1}{2})$
18.	$\frac{1}{2}$	1
19.	$\frac{AD}{BD} = \frac{AE}{EC}$ (By B.P.T.) $\frac{1.5}{3} = \frac{1}{EC}$ $\therefore EC = 2\text{ cm}$	$(\frac{1}{2})$ $(\frac{1}{2})$
20.	$A_5 = a_1 + 4d = 0$ $1^2 + 4d = 0$ $d = -3$	$(\frac{1}{2})$ $(\frac{1}{2})$
SECTION - B		
21.	P (Two Head) = $\frac{1}{4}$	(1) (1)
22.	Good bulbs = 25 - 5 = 20 P (good bulb) = $\frac{20}{25} = \frac{4}{5}$	(1) (1)
	OR	
	Of all those outcomes, the ones for which a + b = 8 are: 2+6, 3+5, 4+4, 5+3, 6+2 or 5 outcomes.	(1)
	P = 5/36	(1)

	<p>OR</p> $\text{L.H.S.} = \frac{\tan A + \sin A}{\tan A - \sin A} \quad (1)$ $= \frac{\frac{\sin A}{\cos A} + \sin A}{\frac{\sin A}{\cos A} - \cos A} = \frac{\sin A [\sec A + 1]}{\sin A [\sec A - 1]} \quad (\frac{1}{2})$ $= \text{R.H.S} \quad (1)$	<p>(1)</p> <p>($\frac{1}{2}$)</p> <p>($\frac{1}{2}$)</p> <p>(1)</p> <p>(1)</p>
31.	<p>Let us assume that $5 - \sqrt{3}$ is a rational</p> <p>We can find co prime a & b ($b \neq 0$) such that</p> $5 - \sqrt{3} = \frac{a}{b}$ <p>Therefore $5 - \frac{a}{b} = \sqrt{3}$</p> <p>So we get $\frac{5b-a}{b} = \sqrt{3}$</p> <p>Since a & b are integers, we get $\frac{5b-a}{b}$ is rational, and so $\sqrt{3}$ is rational. But $\sqrt{3}$ is an irrational number</p> <p>Which contradicts our statement</p> <p>$\therefore 5 - \sqrt{3}$ is irrational</p> <p style="text-align: center;">OR</p> $616 = 32 \times 19 + 8$ $\Rightarrow r = 8 \neq 0$ $32 = 8 \times 4 + 0$ $\Rightarrow r = 0$ <p>The HCF of 32 and 616 is 8.</p>	<p>($\frac{1}{2}$)</p> <p>(1)</p> <p>($\frac{1}{2}$)</p> <p>(1)</p> <p>(1)</p> <p>(2)</p> <p>(1)</p>
32.		(1)

37.



(1)

(1)

For correct fig

$$\text{In } \triangle ADC, \tan 45^\circ = \frac{75}{CD}$$

(1)

$$1 = \frac{75}{CD} \Rightarrow CD = 75$$

$$\text{In } \triangle ADB, \tan 30^\circ = \frac{75}{BD}$$

$$\frac{1}{\sqrt{3}} = \frac{75}{BD}$$

(1)

$$\Rightarrow BD = 75\sqrt{3}$$

$$\Rightarrow \text{Distance between two ships} = BC = 75(\sqrt{3} - 1)\text{m}$$

$$= 54.9 \text{ m}$$

38. For correct, Given, To prove, construction and Figure

$$(4 \times \frac{1}{2})$$

$$= 2)$$

(2)

For correct proof

OR

$$(5 \times \frac{1}{2})$$

$$= 2\frac{1}{2})$$

For correct statement, Given, To prove, Construction and Figure

	For correct proof	$(\frac{1}{2})$												
39.	<p>A.T. Q.</p> $\pi r^2 \times 1800 = \pi \times \frac{1}{2} \times \frac{1}{2} \times 8$ $\Rightarrow r^2 = \frac{1}{900}$ $\Rightarrow r = \frac{1}{30}$ <p>\therefore Thickness of wire = $\frac{1}{15} \text{ cm}$</p> <p style="text-align: center;">OR</p> $\frac{4}{3} \pi r^3 = \pi R^2 h$ $\frac{4}{3} (4.2)^3 = (6)^2 h$ $\Rightarrow h = \frac{2744}{100}$ <p>$\therefore h = 2.744 \text{ cm}$</p>	<p>(2)</p> <p>$(\frac{1}{2})$</p> <p>$(\frac{1}{2})$</p> <p>(2)</p> <p>$(\frac{1}{2})$</p> <p>$(\frac{1}{2})$</p>												
40.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 33%;">Daily Income</th> <th style="width: 33%;">Number of workers</th> <th style="width: 33%;">Cumulative Frequency</th> </tr> </thead> <tbody> <tr> <td>400-420</td> <td>12</td> <td>12</td> </tr> <tr> <td>420-440</td> <td>14</td> <td>26</td> </tr> <tr> <td>440-460</td> <td>8</td> <td>34</td> </tr> </tbody> </table>	Daily Income	Number of workers	Cumulative Frequency	400-420	12	12	420-440	14	26	440-460	8	34	
Daily Income	Number of workers	Cumulative Frequency												
400-420	12	12												
420-440	14	26												
440-460	8	34												

	460-480	6	40	
	480-500	10	50	
	Correct Table			(2)
	Drawing an ogive with co-ordinates (420,12), (440,26), (460,34), (480,40), (500,50)			(2)

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