



**PRE-BOARD  
CLASS X SESSION 2023-24  
MARKING SCHEME  
MATHEMATICS STANDARD (041)**

**CODE - MATHEMATICS STANDARD /10/B**

**TIME=3 HOURS**

**MM=80**

Q.NO.	EXPECTED ANSWERS/VALUE POINTS	MARKS
<b>SECTION A</b>		
Q1.	(b) 2	1
Q2.	Same as Q5 SET A	1
Q3.	Same as Q6 SET A	1
Q4.	Same as Q18 SET A	1
Q5.	Same as Q11 SET A	1
Q6.	Same as Q12 SET A	1
Q7.	(c) $60^\circ$	1
Q8.	(c) $\frac{1}{6}$	1
Q9.	Same as Q1 SET A	1
Q10.	Same as Q2 SET A	1
Q11.	Same as Q3 SET A	1
Q12.	Same as Q15 SET A	1
Q13.	Same as Q16 SET A	1
Q14.	Same as Q17 SET A	1
Q15.	(d) 2:1	1
Q16.	Same as Q8 SET A	1
Q17.	(a) 3cm	1
Q18.	Same as Q10 SET A	1
Q19.	Same as Q20 SET A	1
Q 20.	Same as Q19 SET A	1
<b>SECTION B</b>		
Q21	PA.PB=(PC-AC)(PC+BC) =(PC-AC)(PC+AC) (Since AC=BC) =PC <sup>2</sup> -AC <sup>2</sup>	1 $\frac{1}{2}$ $\frac{1}{2}$
Q22	Same as Q24 SET A	
Q23	Same as Q22 SET A	
Q24	Same as Q25 SET A	

Q25	<p>Let <math>\sqrt{2}</math> be a rational number.</p> <p><math>\therefore \sqrt{2} = \frac{p}{q}</math>, where <math>q \neq 0</math> and let <math>p</math> &amp; <math>q</math> be co-primes.</p> <p><math>2q^2 = p^2 \Rightarrow p^2</math> is divisible by 2 <math>\Rightarrow p</math> is divisible by 2</p> <p><math>\Rightarrow p = 2a</math>, where 'a' is some integer ----- (i)</p> <p><math>4a^2 = 2q^2 \Rightarrow q^2 = 2a^2 \Rightarrow q^2</math> is divisible by 2 <math>\Rightarrow q</math> is divisible by 2</p> <p><math>\Rightarrow q = 2b</math>, where 'b' is some integer ----- (ii)</p> <p>(i) and (ii) leads to contradiction as 'p' and 'q' are co-primes.</p> <p><math>\therefore \sqrt{2}</math> is an irrational number.</p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>																																				
	<b>SECTION C</b>																																					
Q26	Same as Q28 SET A																																					
Q27	<p>LCM of 6, 12, 18 = 36</p> <p>So, all the three bells ring together after 36 minutes at 6 : 36 AM</p>	<p>2</p> <p>1</p>																																				
Q28	Same as Q 30 SET A																																					
Q29	Same as Q 27 SET A																																					
Q 30	<table border="1"> <thead> <tr> <th>CLASS INTERVAL</th> <th><math>f_i</math></th> <th><math>x_i</math></th> <th><math>f_i x_i</math></th> </tr> </thead> <tbody> <tr> <td>25-30</td> <td>14</td> <td>27.5</td> <td>385</td> </tr> <tr> <td>30-35</td> <td>22</td> <td>32.5</td> <td>715</td> </tr> <tr> <td>35-40</td> <td>16</td> <td>37.5</td> <td>600</td> </tr> <tr> <td>40-45</td> <td>6</td> <td>42.5</td> <td>255</td> </tr> <tr> <td>45-50</td> <td>5</td> <td>47.5</td> <td>237.5</td> </tr> <tr> <td>50-55</td> <td>3</td> <td>52.5</td> <td>157.5</td> </tr> <tr> <td>55-60</td> <td>4</td> <td>57.5</td> <td>230</td> </tr> <tr> <td></td> <td></td> <td></td> <td>2580</td> </tr> </tbody> </table> <p>Mean = <math>\frac{2580}{70} = 36.85</math></p>	CLASS INTERVAL	$f_i$	$x_i$	$f_i x_i$	25-30	14	27.5	385	30-35	22	32.5	715	35-40	16	37.5	600	40-45	6	42.5	255	45-50	5	47.5	237.5	50-55	3	52.5	157.5	55-60	4	57.5	230				2580	<p>Correct table</p> <p>2 marks</p> <p>1`</p>
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	$\text{Mean} = \frac{33700}{250} = 134.8$ <p>Modal Class 120-140</p> $\text{Mode} = 120 + \frac{70-60}{2 \times 70 - 60 - 40} \times 20$ $= 120 + 5$ $= 125$	<p>1/2</p> <p>1</p>
Q34	Same as Q33 SET A	
Q35	Same as Q32 SET A	
	<b>SECTION E</b>	
Q36	Same as Q38 Set A	
Q37	Same as Q36 Set A	
Q38	Same as Q37 Set A	