



**Date: 13/09/23**  
**GRADE: IX**

**TERM EXAMINATION - 01(2023-24)**  
**MATHEMATICS**

**Max marks: 80**  
**Time: 3 Hours**

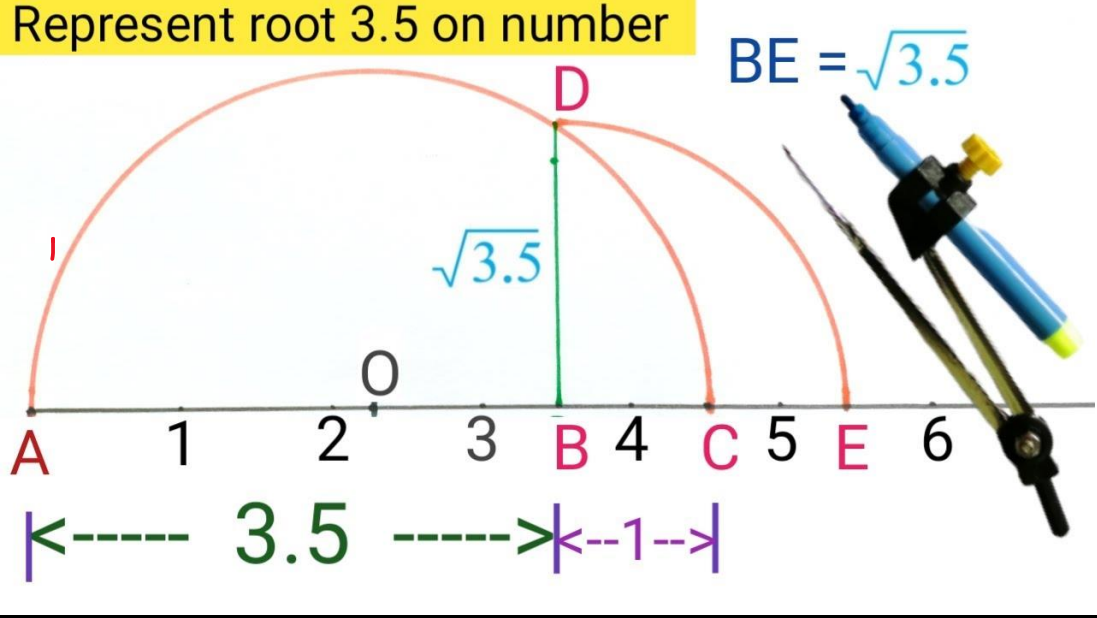
**MARKING SCHEME**

<b>Qn · No</b>	<b>ANSWERS</b>	<b>Marks</b>
1	d) 7.07007...	
2	b) $7/2$	
3	b) (3,0)	
4	b) 25	
5	a) 0	
6	a) 4	
7	b) quadrant II	
8	b) -1	
9	c) (x0,)	
10	a) 3	
11	d) non-terminating and non-recurring	
12	c) 7	
13	a) $18^0$	
14	a) infinitely many solutions	
15	c) rational or irrational	

16	b)6	
17	d) $\sqrt{a} - b/\sqrt{a} - b$	
18	b)1	
19	b)	
20	a)	
	<b><u>SECTION B</u></b>	
21	$x+50^{\circ}=180^{\circ}$ (linear pair) $x=180^{\circ}-50^{\circ}=130^{\circ}$ $y=130^{\circ}$ (vertically opposite angles)	
22	<p style="text-align: center;">Area of the rectangle = <math>l \times b = 4 \times 28</math> sq.unit</p>	
23	Let $x=0.2353535\dots$ $100x=23.5353\dots$ $=23.3+0.23535\dots$ $=23.3+x$ $99x=23.3$ $X=233/990$	
24	(abscissa of A)-(abscissa of B) $=(-3)-(-7)$ $=-3+7$ $=4$	

25	<p>Since <math>AB \parallel CD</math> and <math>PQ</math> is a transversal,  <math>\angle APQ = \angle PQR</math>  <math>X = 50^\circ</math></p> <p>Since <math>AB \parallel CD</math> and <math>PR</math> is a transversal,  <math>\angle APR = \angle PRD</math>  <math>50^\circ + y = 127^\circ</math>  <math>y = 77^\circ</math></p>	
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**SECTION C**

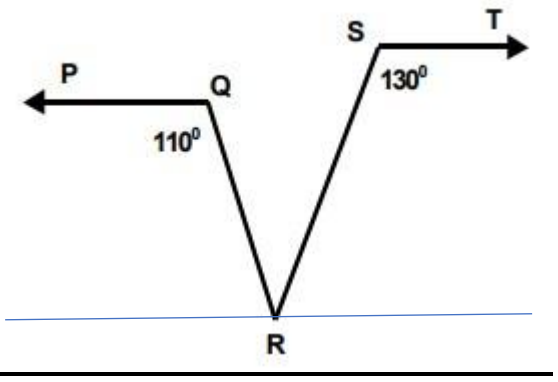
26	<p><b>Represent root 3.5 on number</b></p>  <p><math>BE = \sqrt{3.5}</math></p> <p><math>\sqrt{3.5}</math></p> <p>0 1 2 3 4 5 6</p> <p>A B C E</p> <p>3.5 1</p>	
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27	<p>(i) <math>(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2xz</math></p> <p><math>(4a + (-b) + 2c)^2 = 16a^2 + b^2 + 2c^2 - 8ab - 4bc + 16ac</math></p> <p>(ii) <math>\left(\frac{1}{x} + \frac{y}{3}\right)^2 = \frac{1}{x^2} + \frac{y^2}{9} + \frac{2y}{3x}</math></p>	
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28	<p>Identity used is <math>(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3</math></p> <p><math>1 - 64a^3 - 12a + 48a^2 = (1 - 4a)^3 = (1 - 4a)(1 - 4a)(1 - 4a)</math></p>	
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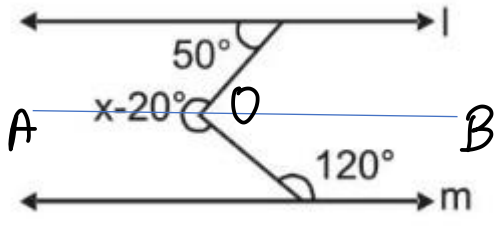
29	<p>(i) (3, 4)</p> <p>(ii) x-axis</p> <p>(iii) (-3, -4)</p>	
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30	<p>(i) let the son's age = <math>x</math>          After 5 years age of son = <math>x+5</math>          Let the age of mother = <math>y</math>          After 5 years age of the mother = <math>y+5</math>  <math>Y+5=3(x+5)</math>  <math>Y+5=3x+15</math>  <math>3x-y+10=0</math></p> <p>(ii) <math>2 \times 2 + 3 \times 3 = k</math>  <math>k=13</math></p>	
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31	 <p>Draw a line AB parallel to PQ through R  <math>\angle PQR + \angle QRA = 180^\circ</math>  <math>\angle QRA = 70^\circ</math>  <math>\angle SRB + \angle RST = 180^\circ</math>  <math>\angle SRB = 50^\circ</math>  <math>\angle QRS = 180^\circ - 120^\circ = 60^\circ</math></p>	
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<b><u>SECTION D</u></b>		
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32	$\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2}$ $= \frac{3+\sqrt{8}}{(3-\sqrt{8})(3+\sqrt{8})} - \frac{\sqrt{8}+\sqrt{7}}{(\sqrt{8}-\sqrt{7})(\sqrt{7}+\sqrt{8})} + \frac{\sqrt{7}+\sqrt{6}}{(\sqrt{7}-\sqrt{6})(\sqrt{7}+\sqrt{6})} - \frac{\sqrt{6}+\sqrt{5}}{(\sqrt{6}-\sqrt{5})(\sqrt{6}+\sqrt{5})} + \frac{\sqrt{5}+2}{(\sqrt{5}-2)(\sqrt{5}+2)}$ $= (3+\sqrt{8}) - (\sqrt{8} + \sqrt{7}) + (\sqrt{7} + \sqrt{6}) - (\sqrt{6} + \sqrt{5}) + (\sqrt{5} + 2)$ $= 3+2$ $= 5$	
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33	<p>(i) <math>x^3 + y^3 + z^3 = 3xyz</math>  <math>(-12)^3 + 5^3 + 7^3 = 3 \times (-12) \times 5 \times 7</math>  <math>= -1260</math></p> <p>(ii) Since <math>x-3</math> is a factor <math>9p+15+r=0</math>          Since <math>x-1/3</math> is a factor <math>p+15+9r</math>          Equating we get <math>8p=8r</math>  <math>p=r</math></p>	
34	<p>(i) <math>y=8+5(x-1)</math>  <math>y=8+5x-5</math>  <math>5x-y+3=0</math></p> <p>(ii) <math>a=5, b=-1, c=0</math></p> <p>(iii) <math>(1,8)</math> and <math>(-1,-2)</math></p>	
35	 <p>Draw a line AB parallel to l through O.</p> $x-20^\circ = 360^\circ - (50^\circ + 60^\circ)$ $= 360^\circ - 110^\circ$ $= 250^\circ$ $x = 270^\circ$	
<b><u>SECTION E</u></b>		
36	<p>(i) b)</p> <p>(ii) a)</p> <p>(iii) b)</p> <p>(iv) c)</p>	
37	<p>(i) c)</p> <p>(ii) b)</p> <p>(iii) c)</p> <p>(iv) b)</p>	

38	(i) c) (ii) a) (iii) d) (iv) c)	
	THE END	