

Mid Term Exam 2022-2023

Subject: MATHEMATICS

Set A1/A2 (Marking key)

Time : 3 Hours

Max Marks : 80

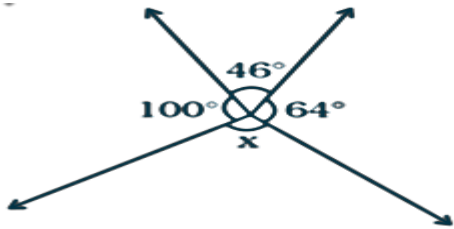
Note :

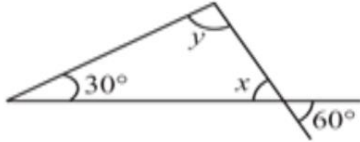
- (1) This marking key contains 11 printed pages.
- (2) Section A contains 15 questions of 1 mark each.
- (3) Section B contains 7 questions of 2 marks each.
- (4) Section C contains 7 questions of 3 marks each.
- (5) Section D contains 6 questions of 5 marks each.

A1	A2	Suggested steps	Marks
		<u>SECTION A</u>	
1	3	3 taken away from 0 gives (a) 3 (b) -3 (c) 0 (d) not possible Ans (b)	1
2	2	Place value of digit 3 in 9.083 is (a) 3 (b) 1 (c) $\frac{3}{10}$ (d) $\frac{3}{1000}$ Ans (d)	1
3	1	Statement: 7 is multiplied by y and product subtracted from 5 gives 19 Equation for the above statement is (a) $5 \times 7y = 19$ (b) $5 - 7y = 19$ (c) $7y - 5 = 19$ (d) $5y - 7 = 19$ Ans (b)	1
4	6	The triangle in which two altitudes are two of its sides is called (a) Obtuse angled triangle (b) Right angled triangle (c) Acute angled triangle (d) Isosceles triangle Ans (b)	1

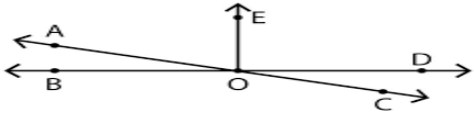
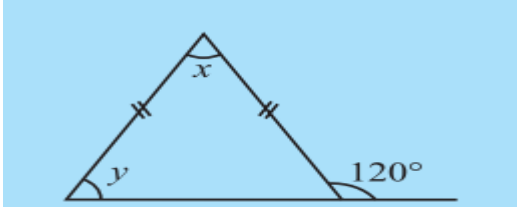
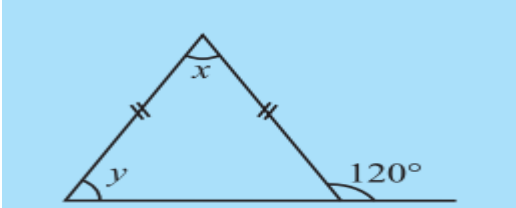
5	5	<p>‘Getting a number less than 1 on throwing a die.’</p> <p>Above event can be classified as:</p> <p>(a) certain to happen (b) impossible to happen</p> <p>(c) may or may not happen (d) probability</p> <p>Ans (b) impossible to happen</p>	1
6	7	<p>The equation $t - 5 = 3$ in statement form can be written as .</p> <p>(a) t subtracted from 5 gives 3 (b) 3 subtracted from 5 gives t</p> <p>(c) 5 subtracted from t gives 3 (d) t subtracted from 5 gives 8</p> <p>Ans (c)</p>	1
7	11	<p>The temperature of a city is 4°C. Next day the temperature falls by 5°C. What is the temperature of the city next day ?</p> <p>(a) 1°C (b) -1°C (c) 9°C (d) 4°C</p> <p>Ans (b)</p>	1
8	8	<p>Supplement of 30° is</p> <p>(a) 0° (b) 30° (c) 60° (d) 150°</p> <p>Ans (d)</p>	1
9	12	<p>Value of $\frac{7}{2} \div \frac{8}{3}$ is</p> <p>(a) $2\frac{8}{3}$ (b) $\frac{28}{3}$ (c) $\frac{16}{21}$ (d) $\frac{21}{16}$</p> <p>Ans (d)</p>	1
10	4	<p>A line segment joining a vertex to the midpoint of the opposite side is called</p> <p>(a) altitude (b) bisector (c) median (d) line</p> <p>Ans (c)</p>	1
11	10	<p>The marks (out of 100) obtained by a group of students in a science test are</p> <p>85, 76, 90, 85, 39, 48, 56, 95, 81 and 75.</p>	1

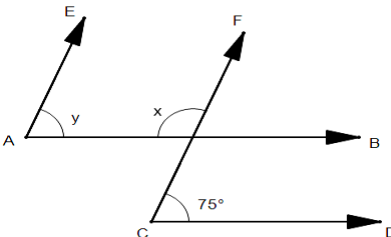
		<p>The range of the marks obtained is</p> <p>(a) 85 (b) 56 (c) 95 (d) 75</p> <p>Ans (b)</p>	
12	9	<p>Mean of first four whole numbers is</p> <p>(a) 4 (b) 10 (c) 1.5 (d) 2.5</p> <p>Ans (c)</p>	1
13	15	<p>The mode of the data 20, 26, 22, 29, 23, 29, 26, 29, 22, 23 is</p> <p>(a) 23 and 29 (b) 23 only (c) 29 only (d) 26 only</p> <p>Ans (c)</p>	1
14	14	<p>The solution of the equation $3x + 5 = 0$ is</p> <p>(a) $\frac{5}{3}$ (b) -5 (c) $-\frac{5}{3}$ (d) 5</p> <p>Ans (c)</p>	1
15	13	<p>Shifting one term from one side of an equation to another side with a change of sign is known as</p> <p>(a) commutativity (b) transposition (c) distributivity</p> <p>(d) associativity</p> <p>Ans (b)</p>	1
		<u>SECTION B</u>	
16	19	<p>Find the product using suitable property.</p> <p>$(-125) \times 19 + 119 \times 125$</p> <p>Ans $(-125) \times 19 + 119 \times 125$</p> <p>$= (125) \times [-19 + 119]$</p> <p>$= 12500.$</p>	<p>1</p> <p>1</p>
17	17	<p>A rectangular sheet of paper is $9\frac{1}{3}$ cm long and $5\frac{1}{6}$ cm wide . Find its area .</p> <p>Ans Area $= 9\frac{1}{3} \times 5\frac{1}{6} = 434/9$ sq cm.</p>	2

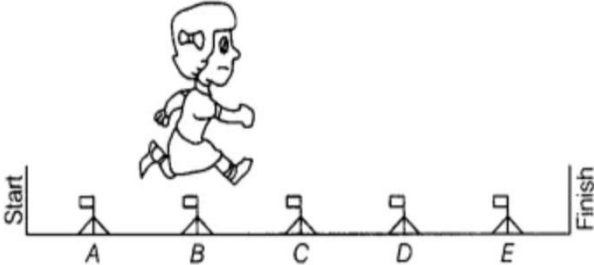
18	18	<p>A1: Find median of the following data:</p> <p>1, 16, 11, 6, 11, 8, 17</p> <p>A2: Find median of the following data:</p> <p>1, 16, 15, 6, 15, 8, 17</p> <p>Ans A1: Asc. Order : 1, 6, 8, 11, 11, 16, 17</p> <p>$n = 7$</p> <p>Middle value = $(7+1)/2 = 4^{\text{th}}$ observation</p> <p>$= 11$</p> <p>A2: Asc. Order : 1, 6, 8, 15, 15, 16, 17</p> <p>$n = 7$</p> <p>Middle value = $(7+1)/2 = 4^{\text{th}}$ observation</p> <p>$= 15$</p>	<p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>
19	16	<p>Solve the following equation :</p> <p>$-3(2x - 1) = 15$</p> <p>Ans $-3(2x - 1) = 15$</p> <p>$-6x + 3 = 15$</p> <p>$-6x = 12$</p> <p>$x = -2$</p>	<p>1</p> <p>1</p>
20	22	<p>Find the value of x :</p>  <p>Ans $100 + 46 + 64 + x = 360$ (complete angle)</p>	

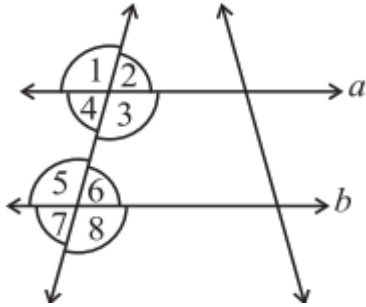
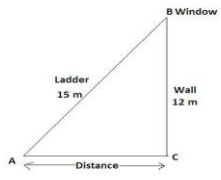
		$x = 150^0$ (on simplification)	1 1
21	21	<p>From the following figure , find x and y</p>  <p>Ans $x = 60^0$ (vert. opp. angles)</p> <p>$180 = y + x + 30$ (angle sum property of triangle)</p> <p>$y = 90^0$</p>	1 1
22	20	<p>Is there a triangle whose sides have lengths 10 cm, 5 cm and 4 cm? Give reasons.</p> <p>Ans Suppose such a triangle is possible. Then the sum of the lengths of any two sides would be greater than the length of the third side.</p> <p>Is $10 + 5 > 4$? Yes</p> <p>Is $5 + 4 > 10$? No</p> <p>Therefore, the triangle is not possible.</p>	1/2 $\frac{1}{2}$ $\frac{1}{2}$ 1/2
		<u>SECTION C</u>	
23	23	<p>Evaluate: $[(-15) + (-70)] \div [(20) + (- 3)]$</p> <p>Ans $[(-15) + (-70)] \div [(20) + (- 3)]$</p> <p>$= [-85] \div [(17)]$</p> <p>$= - 5$</p>	2 1
24	26	<p>Mrs Asha baked a chocolate cake. She gave $\frac{1}{2}$ of it to her neighbour and ate $\frac{1}{4}$ of it. What fraction of the cake is left with her?</p> <p>Ans Let the cake be 1 .</p> <p>Cake given to neighbour $= \frac{1}{2}$</p> <p>Cake eaten by Asha $= \frac{1}{4}$</p> <p>Cake left $= 1 - (\frac{1}{4} + \frac{1}{2}) = \frac{1}{4}$</p>	1 2

25	25	Age (in years) of 15 persons are given below: 65 65 63 60 63 60 64 63 60 64 60 63 60 65 63 Ans <table><tr><td>Age</td><td>Tally marks</td><td>No of persons(f)</td></tr><tr><td>60</td><td> </td><td>5</td></tr><tr><td>63</td><td> </td><td>5</td></tr><tr><td>64</td><td> </td><td>2</td></tr><tr><td>65</td><td> </td><td>3</td></tr><tr><td>Total</td><td></td><td>15</td></tr></table>	Age	Tally marks	No of persons(f)	60		5	63		5	64		2	65		3	Total		15	3
Age	Tally marks	No of persons(f)																			
60		5																			
63		5																			
64		2																			
65		3																			
Total		15																			
26	24	A1: Laxmi’s father is 58 years old. He is 4 years older than three times Laxmi’s age. What is Laxmi's age? A2: Laxmi’s father is 60 years old. He is 4 years older than four times Laxmi’s age. What is Laxmi's age? Ans A1: Let Laxmi’s age = y yrs. ATQ, $3y + 4 = 58$ $y = (58-4)/3 = 18$ So , Laxmi’s age = 18 years A2: Let Laxmi’s age = y yrs. ATQ, $4y + 4 = 60$ $y = (60-4)/4 = 14$ So , Laxmi’s age = 14 years	1+1/2 <																		

			1 for each part
		Ans (i) $\angle BOA, \angle EOA$ (ii) $\angle AOB, \angle COB$ (iii) $\angle AOB, \angle COD$	
28	28	<p>From the given fig. find x, y</p>  <p>Ans</p>  <p> $\angle a = 60^\circ$ (linear pair) $\angle y = \angle a = 60^\circ$ (angle opp. Equal side) Using angle sum property of triangle, $x + y + a = 180$ $x = 60^\circ$ </p>	1+1/2 for each
29	27	<p>A1: One of the angles of a triangle is 80° and the other two angles are equal. Find the measure of each of the equal angles.</p> <p>A2: One of the angles of a triangle is 70° and the other two angles are equal. Find the measure of each of the equal angles.</p> <p>Ans A1: Let the other two angles be x° each.</p> <p>So $x + x + 80 = 180$ $2x = 100$ $x = 50$</p> <p>A2 : Let the other two angles be x° each.</p> <p>So $x + x + 70 = 180$ $2x = 110$ $x = 55$</p>	<p>1</p> <p>1</p> <p>1</p>
		<u>SECTION D</u>	

30	30	<p>In a test (+5) marks are given for every correct answer and (–2) marks are given for every incorrect answer.</p> <p>(i) Radhika answered all the questions and scored 30 marks though she got 10 correct answers. How many incorrect answers she had attempted?</p> <p>(ii) Mohan got four correct and six incorrect answers. What is his score?</p>																			
		<p>Ans Marks given for one correct answer = 5</p> <p>Marks given for one incorrect answer = – 2</p> <p>(i)Score = 30</p> <p>So, marks given for 10 correct answers = $10 \times 5 = 50$</p> <p>Marks given for incorrect answers = $30 - 50 = -20$</p> <p>Therefore number of incorrect answers = $(-20) \div (-2) = 10$</p> <p>(ii) Marks given for 4 correct answers = $4 \times 5 = 20$</p> <p>Marks given for 6 incorrect answers = $6 \times (-2) = -12$</p> <p>Score = $20 + (-12) = 8$</p>	2+1/2 for each part																		
31	35	<p>In the figure given below, $AE \parallel CF$ and $AB \parallel CD$. Find x and y.</p> <div></div> <p>Ans Using properties of parallel lines, $x = 105^\circ$, $y = 75^\circ$</p>	2+1/2 for each part																		
32	32	<p>Marks obtained in various subjects by Ravi of class 7th in 1st and 2nd term exam(out of 100) are given below:</p> <table border="1"><thead><tr><th>Term</th><th>English</th><th>S.St.</th><th>Science</th><th>Hin di</th><th>Mat hs</th></tr></thead><tbody><tr><td>1st term</td><td>60</td><td>80</td><td>90</td><td>65</td><td>80</td></tr><tr><td>2nd term</td><td>75</td><td>75</td><td>80</td><td>75</td><td>90</td></tr></tbody></table> <p>Draw a double bar graph for the given data.</p> <p>Ans Scale 1 cm = 10 marks , Double bar graph</p>	Term	English	S.St.	Science	Hin di	Mat hs	1 st term	60	80	90	65	80	2 nd term	75	75	80	75	90	5
Term	English	S.St.	Science	Hin di	Mat hs																
1 st term	60	80	90	65	80																
2 nd term	75	75	80	75	90																

33	33	<p>In a hurdle race, Tina is over hurdle B and $\frac{2}{6}$ of the way through the race, as shown in the given figure.</p>  <p>Then, answer the following:</p> <p>i) Where will Tina be, when she is $\frac{4}{6}$ of the way through the race? a) hurdle A b) hurdle C c) hurdle D d) hurdle E</p> <p>ii) If total distance to be covered in race is 300 m, then distance covered by Tina over hurdle E is a) 100 m b) 200 m c) 50 m d) 250 m</p> <p>iii) Fraction $\frac{2}{6}$ is a a) mixed fraction b) proper fraction c) improper fraction d) like fraction</p> <p>iv) An equivalent fraction of $\frac{2}{6}$ with denominator 30 is a) $\frac{30}{60}$ b) $\frac{1}{3}$ c) $\frac{20}{60}$ d) $\frac{10}{30}$</p> <p>v) Lowest form of $\frac{2}{6}$ is a) $\frac{1}{6}$ b) $\frac{5}{6}$ c) $\frac{1}{3}$ d) $\frac{6}{2}$</p> <p>Ans i) c) ii) d) iii) b) iv) d) v) c)</p>	1 for each part
34	34	<p>(A) State the property that is used in each of the following statements?</p> <p>(i) If $a \parallel b$, then $\angle 1 = \angle 5$.</p> <p>(ii) If $\angle 4 = \angle 6$, then $a \parallel b$.</p> <p>If $\angle 4 + \angle 5 = 180^\circ$, then $a \parallel b$</p> <p>(B) If $\angle 2 = 80^\circ$, then find value of $\angle 5$.</p>	

		 <p>Ans (i) If $a \parallel b$, then $\angle 1 = \angle 5$. are corresponding angles. If two parallel lines are intersected by a <u>transversal</u>, then each pair of corresponding angles are equal.</p> <p>(ii) If $\angle 4 = \angle 6$, then $a \parallel b$. When a transversal intersects two lines such that if a pair of <u>alternate interior angles</u> are equal then the lines are parallel.</p> <p>(iii) If $\angle 4 + \angle 5 = 180^\circ$, then $a \parallel b$. When a transversal intersects two parallel line such that pair of interior angles on the same side of the transversal are <u>supplementary</u>, then the lines are parallel.</p> <p>(B) $\angle 2 = 80^\circ$ $\angle 4 = \angle 2 = 80^\circ$ (Vert opp angles) $\angle 4 + \angle 5 = 180^\circ$ (co int angles) So, $\angle 5 = 100^\circ$</p>	<p>(A) 1 for each part</p> <p>(B) 2</p>
35	31	<p>A 15 m long ladder reached a window 12 m high from the ground on placing it against a wall at a distance a. Find the distance of the foot of the ladder from the wall.</p> <p>Ans Let AB be the ladder and BC be the wall.</p> <p>B is the position of the wall.</p> <p>\therefore the length of AB = 15 meter and the length of BC = 12 meter, AC = a meter</p> <p>By Pythagoras Theorem :</p> <p>In $\triangle ABC$, $\angle C = 90^\circ$ $(AB)^2 = (BC)^2 + (AC)^2$ $(15)^2 = (12)^2 + (a)^2$ $a^2 = 15^2 - 12^2$</p> 	<p>1 for fig.</p> <p>1</p>

	$a^2 = 225 - 144$ $a^2 = 81$ $a = \sqrt{81}$ $a = 9 \text{ meter}$ So, the distance of the foot of the ladder from the wall is 9m.	3
--	--	----------