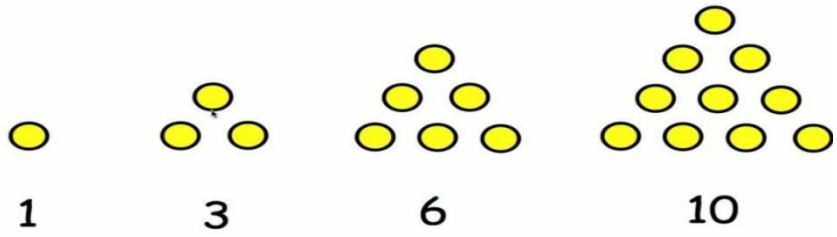
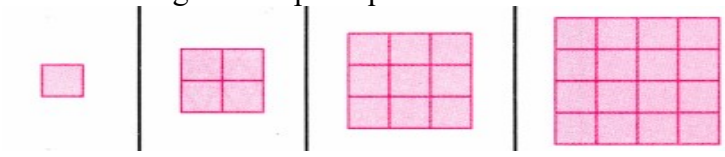
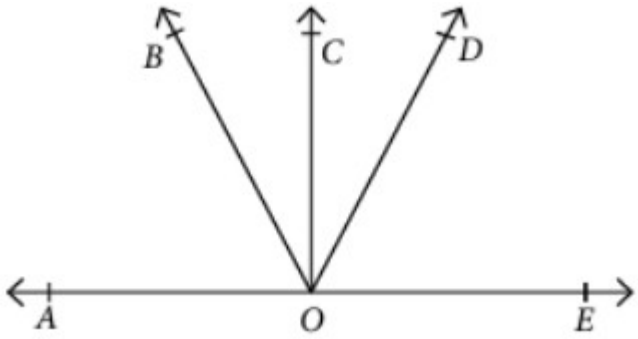
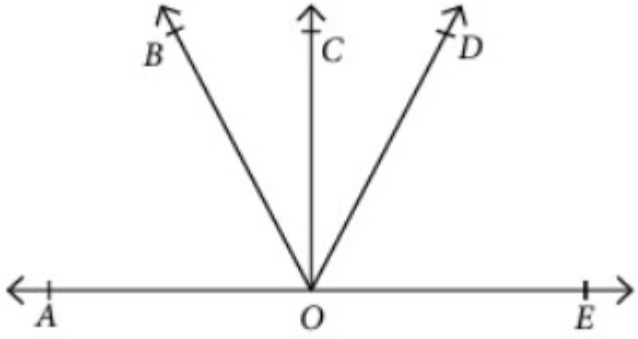
Class - VI
Mid Term Examination (2025-26)
Subject : Mathematics
Set B1/B2 Solution Set

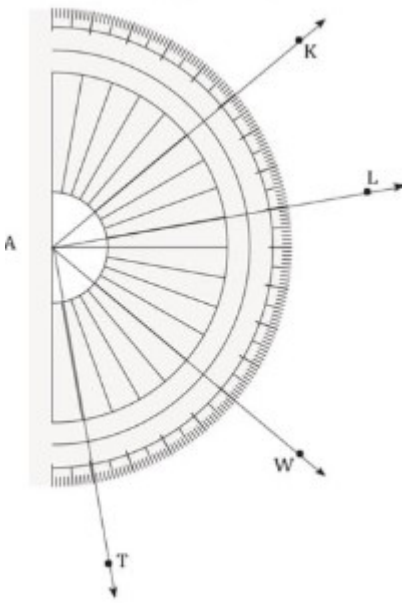
Time Allowed: 2 $\frac{1}{2}$ hours **Maximum Marks: 60**

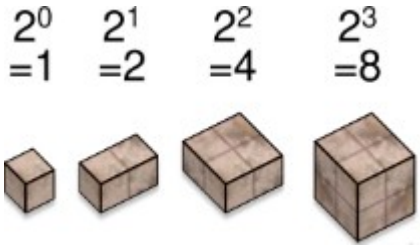
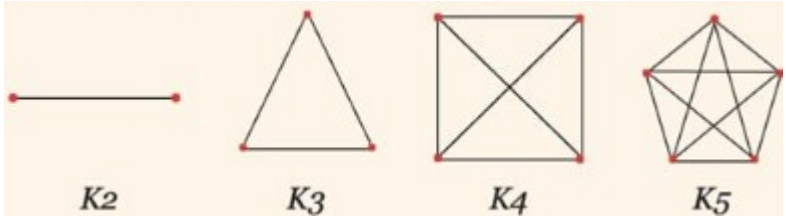
GENERAL INSTRUCTIONS:

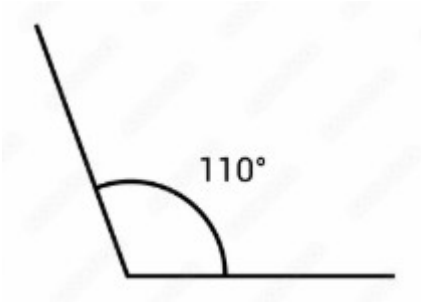
(i) This question paper contains 16 questions. All questions are compulsory. Question paper is divided into FIVE sections – Section A, B, C, D and E.
(ii) In section A – question number 1 has multiple choice questions (MCQs) of 1 mark each.
(iii) In section B – question number 2 to 7 are Objective type questions of 2 marks each.
(iv) In section C – question number 8 to 10 are Short Answer (SA) type questions carrying 3 marks each.
(v) In section D – question number 11 to 13 are Long Answer (LA) type questions carrying 5 marks each.
(vi) In section E – question number 14 to 16 are source based/case study questions carrying 4 marks each. Internal choice is provided in 2 marks question in each source based/case study question.
(vii) There is no overall choice. However, an internal choice has been provided in 1 question in Section B, 2 question in Section C and 2 questions in Section D.
(viii) Draw neat figures wherever required.

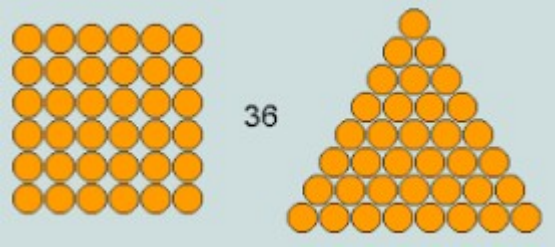
	SECTION - A Question 1 consists of Multiple Choice questions (i-xii) of 1 mark each.	
Q No.1		Marks
Set B1 (i) Set B2 (xii)	Number sequence 1,3,6,10,… are called triangular numbers as shown below:  The 8th number in the above sequence is: (a) 15 (b) 21 (c) 28 (d) 36 SOL: (d) 36	1
(ii)/(xi)	Consider the given shape sequence:  How many small squares will be there in the next step of this shape sequence? (a) 20 (b) 25 (c) 36 (d) 49	1

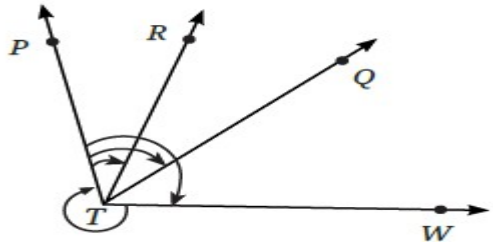
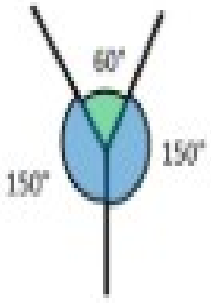
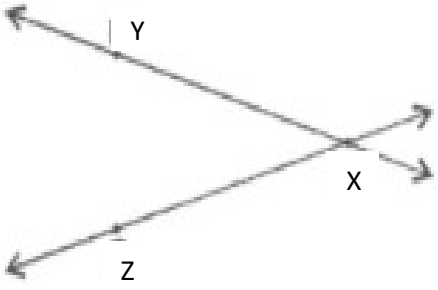
	Sol: (b) 25	
(iii)/ (x)	B1:In the given figure which angle is less than a right angle?  (a) ∠AOD (b)∠BOD (c) ∠BOE (d) ∠AOC Sol: (b) ∠BOD B2: In the given figure which angle is more than a right angle?  (a) ∠BOD (b)∠AOD (c) ∠BOC (d) ∠AOC Sol: (b)∠AOD	1
(iv)/ (ix)	The measure of the angle ∠ KAL in the given figure is:	1

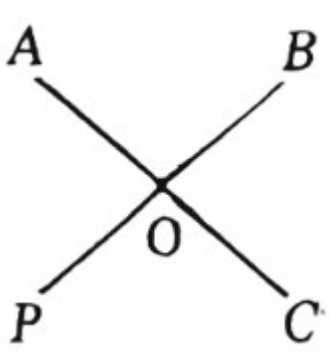
	 (a) 20° (b) 30° (c) 40° (d) 50° Sol: (b) 30°	
(v)/ (viii)	How many numbers have two digits? (a) 100 (b) 90 (c) 99 (d) 90 Sol: (b) 90	1
(vi)/ (vii)	What is the smallest number whose digit sum is 10? (a) 19 (b) 25 (c) 28 (d) 37 Sol: (a) 19	1
(vii)/ (vi)	A number for which the sum of all its factors is equal to twice the number is called: (a) Even number (b) odd number (c) perfect number (d) prime number Sol: (c) perfect number	1
(viii) / (v)	Which of the following is a pair of twin primes: (a) 3 and 7 (b) 5 and 7 (c) 11 and 17 (d) 3 and 11 Sol: (b) 5 and 7	1
(ix)/ (iv)	Which of the following is the smallest number whose prime factorization has three different prime numbers: (a) 30 (b) 8 (c) 27 (d)21 Sol: (a) 30	1
(x)/ (iii)	Figure out the number of whole units in the fraction $\frac{15}{4}$: (a) 1 (b) 2 (c) 3 (d) 4 Sol: (c) 3	1

(xi)/ (ii)	The fraction $\frac{54}{144}$ in lowest term is expressed as: (a) $\frac{3}{8}$ (b) $\frac{4}{8}$ (c) $\frac{3}{18}$ (d) $\frac{3}{6}$ Sol: (a) $\frac{3}{8}$	1
(xii)/ (i)	Three rotis are shared equally by four children.  Fraction of roti each child gets is: (a) $\frac{4}{3}$ (b) $\frac{4}{7}$ (c) $\frac{3}{4}$ (d) $\frac{7}{4}$ Sol: (c) $\frac{3}{4}$	1
	SECTION – B Q 2 to 7 is Objective type questions of 2 marks each	
2/ 7	Given below is the sequence of power of 2.  Write the next two steps in the above pattern. Sol: $2^4 = 16, 2^5 = 32$	2
3/ 6	Count and write the number of lines in each shape in the sequence of Complete Graphs given below.  K2 K3 K4 K5	2

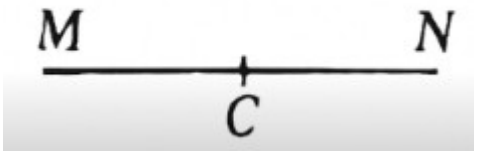
	Which number sequence do you get? Sol: The number of lines are: 1,3,6,15,… This is triangular number series. OR Identify the patterns and write the next four numbers to complete the given patterns. (a) 1, 3, 6, 10, 15, ….., ….,….,… (b) 1, 4, 9, 16, 25, …, …., …., …. Sol: (a) 1, 3, 6, 10, 15, 21, 28, 36,45 (b) 1, 4, 9, 16, 25, 36, 49, 64,81	
4/ 5	Use a protractor to draw an angle having the degree measures 110°. Sol:  	2
5/ 4	State if the statement is 'Always true', 'Only sometimes true' or 'Never true'. Give examples to support your answer. Statement: 4-digit number + 2-digit number gives a 6-digit number Sol: Never true 9 9 9 9 (largest 4 digit no.) + 9 9 (largest 2 digit no.) 1 0 0 9 8 (5 digit number)	2
6/ 3	Find the common factors of 24 and 32. Sol: Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24 Factors of 32: 1, 2, 4, 8, 16, 32 1, 2, 4, 8 are the common factors of 24 and 32.	2
7/ 2	Find equivalent fractions for the fractions $\frac{1}{10}$ and $\frac{5}{9}$ such that the fractional units are	2

	the same. Sol: fractions equivalent to $\frac{1}{10}$ and $\frac{5}{9}$ with the same fractional unit (same denominators) are: $\frac{9}{90}\ and \frac{50}{90}$	
	SECTION – C Q 8 to 10 is Short answer type questions of 3 marks each.	
8/ 10	Which sequence you obtain when you add up pairs of consecutive triangular numbers? Show the steps by adding first 4 pairs of consecutive triangular numbers. Sol: 1+3 =4 3+6= 9 6+10 = 16 10+ 15 = 25 4,9,16, 25, …. are called square numbers sequence. OR Represent pictorially the number 36 both as a triangular number and a square number. Sol: 	3
9/ 9	Complete the following pattern by writing the next three steps: 1 =1 1+2+1 = 4 1+2+3+2+1 = 9 _____ _____ Sol: 1+2+3+4+3+2+1 = 16 1+2+3+4+5+4+3+2+1 = 25	3

10/ 8	In the given figure, name the following: (a) Two rays (b) Two angles with a common arm. (c) An acute angle and a reflex angle.  Sol: (a) TP,TR (b) $\angle PTR, \angle PTQ$ (c) $\angle PTR$ and reflex $\angle PTW$ OR Draw the letter 'Y' such that the three angles formed are 150°, 60° and 150°. Sol:  	3
	SECTION – D Q 11 to 13 is Long Answer type questions of 5 marks each.	
11/ 13	Draw a rough figure and write labels appropriately to illustrate each of the following: a. XY and XZ meet at X. b. AB and PQ intersect at point O. c. Point C lies on MN. SOL:  (a)	2 2 1

(b) 

Point C

(c) 

2

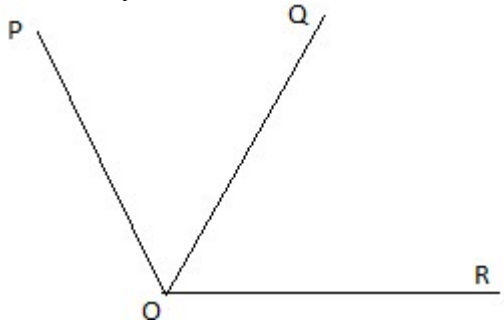
OR

Answer the following questions:

(a) What will be the angle at 2 o'clock in the given figure? (show working)

3

(b) Measure ∠POQ and ∠POR in the given figure.
Also verify that $\angle POQ + \angle QOR = \angle POR$



Sol:

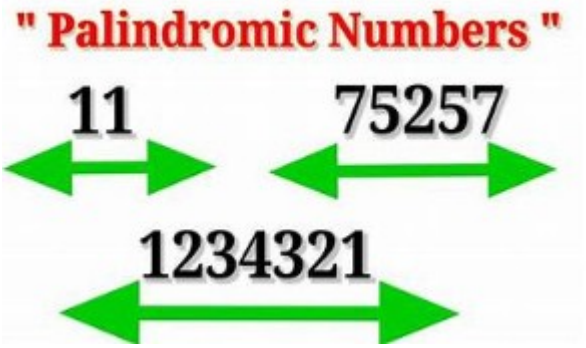
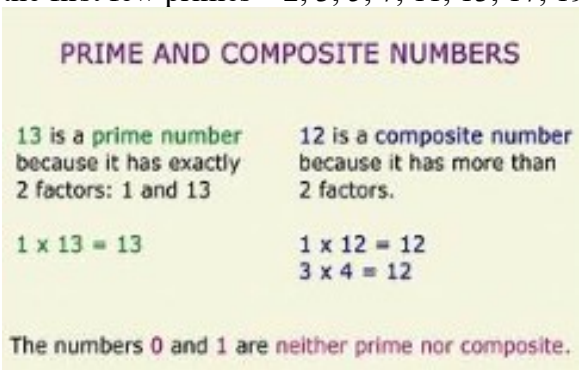
(a) A clock is a circle of **360 degrees**

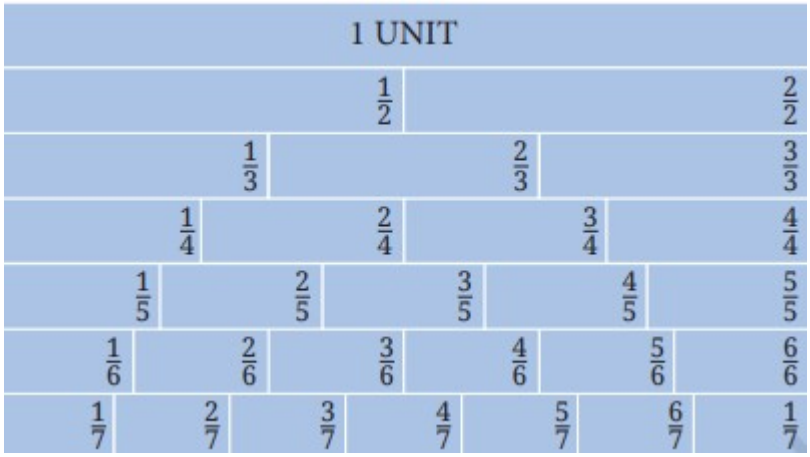
There are **12 numbers**, so:

360∘/12=30∘ between each number
So, angle at 2 o'clock =2×30∘=60∘

(b) Appropriate measure using protractor.

12/ 12	B1: Answer the following questions: (a) Use prime factorisation to check whether 242 and 195 are coprime? (b) Using divisibility test check whether 8536 is divisible by 4. Sol: (a) Consider 242 and 195. Their prime factorisations are as follows: 242 = 2 × 11 × 11 and 195 = 3 × 5 × 13. The prime factors of 242 are 2 and 11. The prime factors of 195 are 3, 5, and 13. There are no common prime factors. Therefore, 242 and 195 are co-prime. (b)Last two digits = 36 Since 36 is divisible by 4, 8536 is divisible by 4 B2: Answer the following questions: (a) Use prime factorisation to check whether 40 and 231 are coprime? (b) Using divisibility test check whether 8536 is divisible by 8. Sol: (a) Consider 40 and 231. Their prime factorisations are as follows: 40 = 2 × 2 × 2 ×5 and 231 = 3 × 7 × 11. There are no common prime factors. Therefore, 40 and 231 are co-prime. (b)Last three digits =536 Since 536 is divisible by 8, 8536 is divisible by 8	3 2
13/ 11	Geeta bought $\frac{2}{5}$ meter of lace and Shamim bought $\frac{3}{4}$ meter of the same lace to put a complete border on a table cloth whose perimeter is 1 meter long. Find the total length of the lace they both have bought. Will the lace be sufficient to cover the whole border? If yes, how much extra length of lace they have brought? Give reasons to support your answer. Sol: To find the total lace length, add 2/5 and 3/4. Convert 2/5 to 8/20 and 3/4 to 15/20. Then, add 8/20 and 15/20 to get 23/20, which is more than 1 meter. Extra length of lace = 23/20 – 1= 3/20 m **OR** Answer the following questions: (a) Subtract $\frac{3}{7}$ from $\frac{2}{3}$. (b) Add $\frac{8}{3}+\frac{4}{5}+\frac{6}{7}$ using Brahmagupta's method. Sol: (a) $\frac{2}{3}-\frac{3}{7}=\frac{14}{21}-\frac{9}{21}=\frac{5}{21}$ (b) $\frac{8}{3}+\frac{4}{5}+\frac{6}{7}$	5 2 3

	$= \frac{280}{105} + \frac{84}{105} + \frac{90}{105}$ $= \frac{454}{105} = 4\frac{34}{105}$	
	SECTION – E Q 14 to 16 is Source based/Case study questions of 4 marks each.	
14/ 16	The numbers that read the same from left to right and from right to left are called palindromes or palindromic numbers. For example: 4554, 1111…  Based on the above information, answer the following questions: (i) Make the smallest 3-digit palindrome. (ii) Make all the possible 3-digit palindromes using the digits 1 and 2. (iii) (a) Find the sum of smallest and largest 3-digit palindrome? **OR** (b)The time now is 10:01. How many minutes until the clock shows the next palindromic time? Sol: (i) 101 (ii) 111,121,212,222 (iii) (a)101+999=1100 **OR** (b)The next palindromic time after 10:01 is 11:11, occurring after 70 minutes.	1 1 2
15/ 15	Numbers that have only two factors are called prime numbers or primes. Here are the first few primes—2, 3, 5, 7, 11, 13, 17, 19.  Notice that the factors of a prime number are 1 and the number itself. The numbers that have more than two factors are called composite numbers. The first few composite numbers are—4, 9, 10, 12.	

	Based on the above information, answer the following questions: (i) Out of 23 and 51, which is a prime number? Give reason to support your answer. (ii) State an even number which is also prime. (iii) (a) List 4 pairs of primes up to 100 with same digits. **OR** (b)List all the primes between 1 to 20. Sol: (i) 23 is a prime number (ii) 2 (iii) (a) 13 and 31, 17 and 71,37 and 73 and 79 and 97 **OR** (b)2,3,5,7,11,13,17 AND 19	1 1 2
16/ 16	Consider the fraction wall given below:  Based on the above figure, answer the following questions: (i) Which is greater $\frac{2}{5}$ or $\frac{2}{4}$? (ii) Are the lengths $\frac{2}{4}$ and $\frac{3}{6}$ are equal? Justify your answer. (iii) (a) How many pieces of $\frac{1}{6}$ will make a length of $\frac{2}{3}$? **OR** (b)Represent $\frac{2}{5}$ on the number line. Sol: (i) 2/4 (ii) Yes both are equal to ½ (iii) (a) 4 pieces **OR** (b)Correct representation.	1 1 2