NEW COUNTDOWN

THIRD EDITION

6

A Comprehensive Mathematics Series for Grade 6

Assessment Resource Pack

OXFORD UNIVERSITY PRESS

Preface

Assessments are an appropriate way for teachers to assess the extent to which the students have grasped the learning objectives and their ability to apply their learned concepts. An effective assessment is based on the curriculum's expectations of a student's learning achievements at every level, as well as provides an evaluation of the process of judgments and the interpretations of the questions by the students when attempting the assessment itself. For an assessment to reach its full purpose, the teacher must also provide descriptive feedback upon return that helps guide the students towards improvement.

The **Assessment Resource Pack** therefore, helps direct the teachers on how to effectively make use of assessments in their classrooms. This resource pack comes with five model papers – two midyear, and three final papers – that serve as an appropriate example for students to know what to expect in an examination, and for teachers in guiding them on how to make assessment papers that test a student's knowledge, application, and reasoning. The multiple choice questions (MCQ) is a form of objective assessments and can be used to test a wide range of thinking skills focusing on content. They offer students an opportunity to reveal knowledge, skills, and abilities in a variety of ways. Short questions (SQ) generally require exact answers in a short time. Students are more familiar with this practice and they provide a better chances at scoring. Constructive response questions (CRQ) require more elaborate answers with explanation and reasoning. They demand students to create their own responses based on their understanding and prior knowledge. The Unit Weightage Grid also helps teachers balance the paper amongst these three to evaluate several learning objectives within one assessment.

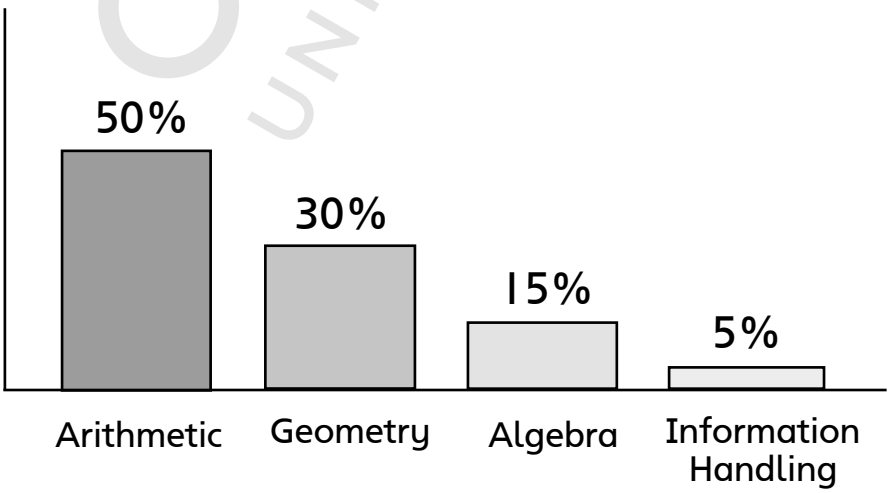
It is important to consider that summative assessments – i.e. term and final examinations – are not the only important kind of assessment in an academic setting. Formative assessments, such as class tests, worksheets, homework, and quizzes, are all of equal importance as they refer to the ongoing process the teacher and students engage in as they focus on common learning goals and work towards achieving them. Informal evaluations such as class discussions, group assignments, and activities all help further enhance the understanding of their learning objectives in different ways, thus challenging them to approach and decipher the same concepts from different angles.

All forms of assessment help the teachers diagnose the process and achievement of the students, and evaluate their ability to grasp and apply concepts in more than one way. The students also benefit from the different kinds of assessment as each kind offers the student more feedback that will eventually guide him or her towards successfully arriving at the learning objective.

Contents

Unit-wise Weightages Grid – Grade VI

Unit	Title	Weightage
1.	Sets	5%
2.	Whole Numbers	5%
3.	Factors and Multiples	20%
4.	Integers	5%
5.	Simplification	5%
6.	Ratio and Proportion	5%
7.	Financial Arithmetic	5%
8.	Introduction to Algebra	7%
9.	Linear Equations	8%
10.	Geometry	15%
11.	Perimeter and Area	7%
12.	Three Dimensional Solids	8%
13.	Information Handling	5%
	Total	100%



Syllabus Coverage Grid

KEY: MCQs ✹ SQs ■ CRQs ▲

Unit	SLOs (Learning Outcomes/Skills)	Mid-Year 1	Mid-Year 2	Annual 1	Annual 2	Annual 3
Sets	**1.1 Set**					
	i) Define set. Recognise notation of a set and its objects/ elements.	■				
	ii) Describe tabular form of a set and demonstrate through examples.	✹	■			▲
	1.2 Types of Set					
	Define					
	• finite and infinite sets,		■			✹
	• empty/void/null set,					✹
	• singleton,					
	• equal and equivalent sets,		✹ ▲			
	• subset and superset of a set,	✹	✹ ■ ▲	✹	✹ ■	
	• proper and improper subsets of a set.					
	Represent a set by a Venn diagram	▲		■		
Whole Numbers	**2.1 Natural and Whole Numbers**					
	i) Differentiate between natural and whole numbers.	✹				
	ii) Identify natural and whole numbers, and their notations.					
	iii) Represent					
	• a given list of whole numbers,					
	• whole numbers < (or >) a given whole number,	✹				
	• whole numbers > (or <) a given whole number,					
	• whole numbers > but < a given whole number,					
	• whole numbers > but < a given whole number,					
	• sum of two or more given whole numbers, on the number line.					
	2.2 Addition and Subtraction of Whole Numbers					
	i) Add and subtract two given whole numbers.		▲		✹	
	ii) Verify commutative and associative law (under addition) of whole numbers.			■		
	iii) Recognise '0' as additive identify.					
	2.3 Multiplication and Division of Whole Number					
	i) Multiply and divide two given whole numbers.					✹
	ii) Verify commutative and associative law (under multiplication) of whole numbers.	✹ ■ ▲	✹	■		
	iii) Recognise '1' as multiplicative identity.					

	2.4 Multiplication and Addition (Subtraction) of Whole Numbers					
	i) Verify distributive law of multiplication over addition.	▲	■	✹	✹	✹
	ii) Verify distributive law of multiplication over subtraction (with positive difference).		■			■
	Solve real-life problems of whole numbers involving four operations					
	Express numbers in expanded notation and vice versa	✹	✹			
Factors and Multiples	**3.1 Factors and Multiples**					
	i) Define a factor as a number which divides the dividend completely leaving no remainder.	✹				
	ii) Define a multiple as a dividend into which a factor can divide.	✹				
	iii) Define even numbers as the numbers which are multiples of 2.					
	iv) Define odd numbers as the numbers which are not multiples of 2.					
	v) Define prime numbers as numbers which have only two factors (i.e., 1 and itself).		✹	✹	✹	
	vi) Define composite numbers as numbers which have more than two factors.		✹	✹		✹
	vii) Know that 1 is neither prime nor composite as it has only one factor which is 1 itself.					
	viii) Know that 1 is a factor of every number.				✹	
	ix) Know that 2 is the only even prime number whereas all other prime numbers are odd.					
	3.2 Tests for Divisibility					
	Test by inspection whether the numbers 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 15, and 25 can divide a given number.	✹ ■	✹ ■	✹		
	3.3 Factorisation					
	i) Define prime factorisation as the process of factorising a number into its prime factors.			✹		
	ii) Recognise index notation.					
	iii) Factorise a given number and express its factors in the index notation.		■			
	3.4 HCF					
	i) Define HCF as the greatest number which is a common factor of two or more numbers.					
	ii) Find HCF of two or more than two numbers by					
	• prime factorisation	■	✹			
	• long division method.	▲				
	3.5 LCM					
	i) Define LCM as the smallest number which is a common multiple of two or more numbers.					✹
	ii) Find LCM of two or more numbers by					
	• prime factorisation	■	■			
	• division method.	▲				
	3.6 Applications of HCF and LCM					
	Solve real-life problems related to HCF and LCM.		▲	▲	▲	▲

Integers	**4.1 Integers**					
	i) Know that					
	• the natural numbers 1, 2,3, …, are also called positive integers and the corresponding negative numbers −1, − 2, −3…, are called negative integers.					
	• '0' is an integer which is neither positive nor negative.					
	ii) Recognise integers.					
	4.2 Ordering of Integers					
	i) Represent integers on number line.					
	ii) Know that on the number line any number lying					
	• to the right of zero is positive,					
	• to the left of zero is negative,					
	• to the right of another number is greater,	✹				
	• to the left of another number is smaller.					
	iii) Know that every positive integer is greater than a negative integer.		✹			
	iv) Know that every negative integer is less than a positive integer.		✹			
	v) Arrange a given list of integers in ascending and descending order.					
	4.3 Absolute or Numerical Value of an Integer					
	i) Define absolute or numerical value of a number as its distance from zero on the number line and is always positive.			▲		
	ii) Arrange the absolute or numerical values of the given integers in ascending and descending order.			✹		
	4.4 Addition of Integers					
	i) Use number line to display:					
	• sum of two or more given negative integers,			✹		
	• difference of two given positive integers,					
	• sum of two given integers.					
	ii) Add two integers (with like signs) in the following three steps:	■	■			
	a) Take absolute values of given integers,					
	b) Add the absolute values,					
	c) Give the result the common sign.					
	iii) Add two integers (with unlike signs) in the following three steps:	■ ▲	■ ▲		✹	✹ ▲
	a) Take absolute values of given integers,					
	b) Subtract the smaller absolute value from the larger,					
	c) Give the result the sign of the integer with the larger absolute value.					
	4.5 Subtraction of Integers					
	i) Recognise subtraction as the inverse process of addition.					
	ii) Subtract one integer from the other by changing the sign of the integer being subtracted and adding according to the rules for addition of integers.	■	■		✹	▲
	4.6 Multiplication of Integers					
	Recognise that					

	• the product of two integers of like signs is a positive integer,	✹ ■	▲	✹		▲
	• the product of two integers of unlike signs is a negative integer.	✹ ■	▲			▲
	4.7 Division of Integers					
	i) Recognise that division is the inverse process of multiplication.					
	ii) Recognise that on dividing one integer by another					
	• if both the integers have like signs the quotient is positive,	✹ ■	■ ▲			▲
	• if both the integers have unlike signs the quotient is negative.	✹ ■	■ ▲			▲
	iii) Know that division of an integer by '0' is not possible.					
Simplifications	**5.1 BODMAS Rule**					
	i) Know that the following four kinds of brackets					
	• — vinculum,					
	• ( ) parentheses or curved brackets or round brackets,					
	• { } braces or curly brackets,					
	• [ ] square brackets or box brackets, are used to group two or more numbers together with operations.					
	ii) Know the order of preference as, –, ( ), { } and [ ], to remove (simplify) them from an expression.					
	iii) Recognize BODMAS rule to follow the order in which the operations, to simplify mathematical expressions, are performed.		■	▲	▲	
	iv) Simplify mathematical expressions involving fractions and decimals grouped with brackets using BODMAS rule.					
	v) Solve real-life problems involving fractions and decimals.					
Ratio and Proportion	**6.1 Ratio**					
	i) Define ratio as a relation which one quantity bears to another quantity of the same kind with regard to their magnitudes.		✹			
	ii) Know that of the two quantities forming a ratio, the first one is called antecedent and the second one consequent.					
	iii) Know that a ratio has no units.					
	iv) Calculate ratio of two numbers.	■ ▲	■ ▲	■ ▲	✹ ■ ▲	
	v) Reduce given ratio into lowest (equivalent) form.	✹	✹	✹		
	vi) Describe the relationship between ratio and fraction.					
	6.2 Proportion					
	i) Know that an equality of two ratios constitutes a proportion, e.g., a : b :: c : d , where a, d are known as extremes and b, c are called the means.					
	ii) Find proportion (direct and inverse).	■	■	■		✹
	iii) Solve real-life problems involving direct and inverse proportion.		▲	■		

	7.1 Percentage					
	i) Recognise percentage as a fraction with denominator of 100.					
	ii) Convert a percentage to a fraction by expressing it as a fraction with denominator 100 and then simplify.					
	iii) Convert a fraction to a percentage by multiplying it with 100%.	✹		✹		
	iv) Convert a percentage to a decimal by expressing it as a fraction with denominator 100 and then as a decimal.		✹			
	v) Convert a decimal to a percentage by expressing it as a fraction with denominator 100 then as a percentage.	✹	✹			✹
	vi) Solve real-life problems involving percentage.	✹		✹ ■	■	✹
	7.2 Profit, Loss, and Discount					
	i) Define					
	• selling price and cost price,	✹	✹			✹
	• profit, loss, and discount,					
	• profit percentage and loss percentage.	▲	✹		✹	
	ii) Solve real-life problems involving profit, loss and discount.	■ ▲	 ▲			
	Find simple interest	▲	▲			
	Solve real-life problems involving simple interest					■
Introduction to Algebra	**8.1 Algebra**					
	i) Explain the term algebra as an extension of arithmetic in which letters replace the numbers.					
	ii) Know that					
	• a sentence is a set of words making a complete grammatical structure and conveying full meaning.					
	• sentences that are either true or false are known as statements.					
	• a statement must be either true or false but not both.					
	• a sentence that does not include enough information required to decide whether it is true or false is know as open statement.					
	• a number that makes an open statement true is said to satisfy the statement.					
	• use English alphabet 'x' in the open statement □ + 2 = 9 to modify it to x + 2 = 9.					
	iii) Define variables as letters used to denote numbers in algebra.					
	iv) Know that any numeral, variable or combination of numerals and variables connected by one or more of the symbols '+' and '−' is known as an algebraic expression					
	8.2 Algebraic Expression					
	i) Know that x, $2y$ and 5 are called the terms of the expression $x + 2y + 5$.					
	ii) Know that the symbol or number appearing as multiple of a variable used in algebraic term is called its coefficient (e.g. in $2y$, 2 is the coefficient of y).					

	iii) Know that the number, appearing in algebraic expression, independent of a variable is called a constant term (e.g. in x + 2y +5, number 5 is a constant term).					
	iv) Differentiate between like and unlike terms.					
	v) Know that					
	• like terms can be combined to give a single term,					
	• addition or subtraction can not be performed with unlike terms.					
	vi) Add and subtract given algebraic expressions.			■	■	✹ ■
	vii) Simplify algebraic expressions grouped with brackets.					
Linear Equations	viii) Evaluate and simplify an algebraic expression when the values of variables involved are given.			✹ ▲	✹ ▲	✹ ▲
	9.1 Algebraic Equations					
	i) Define an algebraic equation.					
	ii) Differentiate between equation and an expression.					
	9.2 Linear Equations					
	i) Define linear equation in one variable.					
	ii) Construct linear expression and linear equation in one variable.				✹	
	iii) Solve simple linear equations involving fractional and decimal coefficients like $-\frac{1}{2}x + 5 = x - \frac{1}{3}$.			■	■	■ ▲
	iv) Solve real-life problems involving linear equations.			▲	▲	
	10.1 Line Segments					
	i) Add measures of two or more line segments.					
	ii) Subtract measure of a line segment from a longer one.					
	iii) Draw a right bisector of a given line segment using compasses.				▲	▲
	iv) Draw a perpendicular to a given line from a point on it using compasses.				▲	
	v) Draw a perpendicular to a given line, from a point outside the line, using compasses.					
	Types of lines: parallel, intersecting, concurrent and non-concurrent					✹
	10.2 Construction of Angles					
	Use compasses to					
	• construct an angle equal in measure of a given angle,			▲		
	• construct an angle twice in measure of a given angle,					
	• bisect a given angle,			▲		
	• divide a given angle into four equal angles,					
	• construct the following angles: 60°, 30°, 15°, 90°, 45° (22 1/2)°, 75°, (67 1/2)°, 120°, 150°, 165°,135°, l05°.					
	Name angles according to their size			✹ ▲	✹	
	Name pair of angles according to their placement			✹	✹	▲
	Measure angles			■	■	■

	10.3 Construction of Triangles					
	i) Construct a triangle when three sides (SSS) are gIven. **Caution:** Sum of two sides should be greater than the third side.			Covered in Grade 7		
	ii) Construct a triangle when two sides and their included angle (SAS) are given.					
	iii) Construct a triangle when two angles and the included side (ASA) are given.					
	iv) Construct a triangle when hypotenuse and one side (RHS) for a right- angled triangle are given.					
	Classify triangles:					
	• according to their sides					✹
	• according to their angles					✹
	Use the following properties of triangles:					
	• interior angles of a triangle add up to 180°			✹ ■		
	• the size of the exterior angle of the triangle is equal to the sum of the size of the opposite interior angles			▲	✹ ▲	▲
	Use the following properties of isosceles triangles:					
	• angles opposite equal sides of a triangle are equal					
	• sides opposite equal angles of a triangle are equal					
Perimeter and Area	**11.1 Perimeter and Area**					
	i) Find perimeter and area of a square and a rectangle.			✹ ■	✹	✹ ■
	ii) Find area of path (inside or outside) of a rectangle or square.				▲	
	iii) Solve real-life problems related to perimeter and area of a square and rectangle.			▲	■	▲
	iv) Recognize altitude of a geometric figure as the measure of the shortest distance between the base and its top.			Covered in Grade 7		
	v) Find area of a parallelogram when altitude and base are given.					
	vi) Define trapezium and find its area when altitude and measures of the parallel sides are given.					
	vii) Find area of a triangle when measures, of the altitude and base are given.					
Three Dimensional Solids	**12.1 Volume and Surface Area**					
	i) Identify 3D figure (cube, cuboid, sphere, cylinder and cone) with respect to their faces, edges and vertices.					
	ii) Define and recognise units of surface area and volume.					
	iii) Find surface area and volume of cube and cuboid.			✹	✹	✹
	iv) Solve real-life problems involving volume and surface area.			■ ▲	■ ▲	■ ▲

Information Handling	**13.1 Types of Data**					
	i) Define data and data collection.					
	ii) Distinguish between grouped and ungrouped data.					
	13.2 Bar Graph					
	Draw horizontal and vertical bar graphs.					✷ ▲
	13.3 Pie Graph					
	Read a pie graph.			Covered in Grade 7		
	Read a pictograph and Bar graph			▲	✷ ▲	▲
	Draw a pictograph to represent data			Covered in Grade 5		

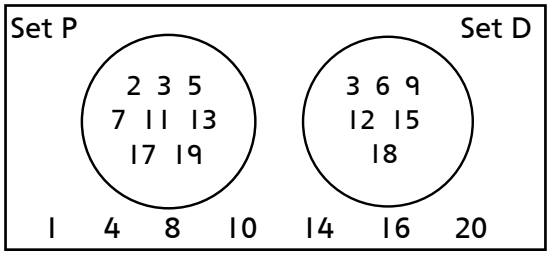
✷ **The highlighted SLOs are not included in National Curriculum for Grade VI but are covered in New Countdown Book 6.**

Marking Scheme
Model Paper 1
Mid-Year Examination
Mathematics

	Section A				Marking Criteria
Q1	i. B ii. A iii. C iv. B v. D	vi. C vii. A viii. B ix. D x. C	xi. A xii. B xiii. C xiv. C xv. D	xvi. B xvii. A xviii. C xix. D xx. D	1 mark for each correct answer
					[Total Marks: 20]

	Section B	Marking Criteria
Q2		
a)	i) Set A = odd numbers between 5 and 15 Set A = {7, 9, 11, 13} ii) Set B = days of the week Set B = {monday, tuesday, wednesday, thursday, friday, saturday, sunday}	1 mark for correct answer 1 mark for correct answer
b)	Set A = {2, 3} Subsets of Set A = { } , {2} , {3} , {2, 3}	1 mark for method that is $2^2 = 4$ subsets 1 mark for correct answer
c)	$143 \times 6 + 4 \times 143$ $= 143 \times (6 + 4)$ $= 1430$	1 mark for identifying correct distributive property of multiplication over addition 1 mark for correct answer
d)	Number: 5 3 8 1 2 (5 + 8 + 2) − (3 + 1) 15 − 4 = 11 ∴ 53812 is divisible by 11	1 mark for using rule of divisibility for 11, (if the difference of sum of digits at odd and even places is divisible by 11, then the number is also divisible by11). 1 mark for correct answer
e)	2 | 18, 30, 12, 42 HCF = 2 × 3 ∴ HCF of 18, 30, 12, 42 = 6	1 mark for method that is using prime numbers only, to factorise 1 mark for correct answer
f)	2 | 15, 30 LCM = 2 × 3 × 5 ∴ LCM of 15, 30 = 30	1 mark for method that is using prime numbers only 1 mark for correct answer

g)	LCM × HCF = Product of numbers LCM × 3 = 54 ∴ LCM = 18	2 marks for use of correct rule and substitution of values 1 mark for correct answer
h)	− 125 + 83 − 20 = − 62	2 marks for correct usage of signs in addition and subtraction of integers 1 mark for correct answer
i)	$\frac{-192}{8}$ = − 24	2 marks for correct usage of signs in multiplication and division 1 mark for correct answer
j)	Total ratio: 5 + 3 = 8 Amount 1: $\frac{5}{8}$ × 800 = Rs 500 Amount 2: $\frac{3}{8}$ × 800 = Rs 300	1 mark for finding total ratio 1 mark for correct answer 1 mark for correct answer
k)	4 : 7 : : 8 : x 4x = 7 × 8 ∴ x = 14 [Accept any appropriate method used to calculate the value of x]	2 marks for writing the correct fourth proportional 1 mark for correct answer
l)	Reduced price: 20% of 500 = Rs 100 SP = CP − Discount = Rs (500 − 100) ∴ selling Price = Rs 400	1 mark for use of method to find discount and SP 2 marks for correct answer of discount and new SP
		[Total Marks: 30]

	Section C	**Marking Criteria**
Q3 a)	Set N = {1, 2, 3, …, 20}  	2 marks for writing correct elements of Set P 2 marks for writing correct elements of Set D

b)	i) [10 + 5] − [12 − 7] =15 − 5 = 10 ii) $\frac{-4 \times 8 \times 9}{36}$ = − 8	2 marks for correct usage of signs, and solving brackets first 1 mark for correct answer 2 marks for first solving powers and correct usage of signs 1 mark for correct answer
		[Total Marks: 10]
Q4 a)	(a × b) × c = a × (b × c) (8 × 10) × 12 = 8 × (10 × 12) 960 = 960 LHS = RHS [Accept numbers used in any order.]	2 marks for using correct associative property of multiplication and substitution of values 1 mark for step-by-step calculation and verification 1 mark for correct answer
b)	a × (b + c) = (a × b) + (a × c) 7 × (8 + 9) = (7 × 8) + (7 × 9) 119 = 119 LHS = RHS [Accept numbers used in any order.]	2 marks for using of correct distributive property over addition and substitution of values 1 mark for step-by-step calculation and verification 1 mark for correct answer
c)	Total ratio: 5 + 4 = 9 Larger length = 150 m Total length will be: $\frac{5}{9} \times x$ = 150 m ∴ total length: 270 Smaller length = $\frac{4}{9} \times 270$ = 120 m Or 5 : 4 :: 150 : x or $\frac{5}{4} = \frac{150}{x}$ = 120 m	1 mark for use of correct method; that is finding total length 1 mark for correct answer
		[Total Marks: 10]
Q5 a)	Any two numbers can be used to divide first: 96 ÷ 72; remainder 24 Then 252 ÷ 24; remainder 12 ∴ HCF of 72, 96, 252 = 12	2 marks for finding HCF by long division method 1 mark for correct calculation 1 mark for correct calculation 1 mark for correct answer
b)	236, 63, 81, 108 LCM = 2 × 2 × 3 × 3 × 3 × 3 × 7 ∴ LCM of 36, 63, 81, 108 = 2268	1 mark for using prime numbers only for long division method 2 marks for step-by-step calculation 2 marks for correct answer
		[Total Marks: 10]

	Section C	Marking Criteria
Q6 a)	Number of men = 1056 Number of women: 1920 − 1056 = 864 i) Ratio of men : women 1056 : 864 11 : 9 ii) Ratio of women : workers 864 : 1920 9 : 20	 1 mark for correct answer 1 mark for writing correct ratio 1 mark for correct answer 1 mark for writing correct ratio 1 mark for correct answer
b)	Distance covered in 15 litres = 225 km Distance covered in 1 litres = 225 15 Distance covered in 32 litres = $\frac{225 \times 32}{15}$ = 480 km	2 marks for usage of unitary method or ratio method 2 marks for correct calculations 1 mark for correct answer
		[Total Marks: 10]
Q7 a)	$\therefore$ simple interest = $\frac{P \times R \times T}{100}$ SI = $\frac{16000 \times 5 \times 3}{100}$ $\therefore$ simple interest = Rs 2400	2 marks for using correct formula for finding interest and substituting correct values 1 mark for correct answer
b)	Profit = SP − CP = Rs (3000 − 2500) = Rs 500 Profit % = $\frac{500}{2500} \times 100$ $\therefore$ profit % = 20%	1 mark for method that is find profit first 1 mark for method to find profit % 1 mark for correct answer
c)	CP : Profit x : 140 3360 : 140 $\therefore$ cost price = Rs 2400	2 marks for writing correct relationship between CP, SP, and profit 1 mark for correct calculation 1 mark for correct answer
		[Total Marks: 10]

Marking Scheme
Model Paper 2
Mid-Year Examination
Mathematics

	Section A				Marking Criteria
Q1	i. B	vi. C	xi. A	xvi. A	1 mark for each correct answer
	ii. C	vii. A	xii. C	xvii. C	
	iii. A	viii. C	xiii. C	xviii. B	
	iv. C	ix. B	xiv. C	xix. A	
	v. D	x. C & D	xv. D	xx. B	
					[Total Marks: 20]

	Section B	Marking Criteria
Q2 a)	i) $a \times (b + c) = (a \times b) + (a \times c)$ $6 \times (8 + 2) = (6 \times \underline{8}) + (\underline{6} \times 2) = \underline{60}$ ii) $a \times (b - c) = (a \times b) - (a \times c)$ $\underline{9} \times (7 - 5) = (\underline{9} \times 7) - (9 \times 5) = \underline{18}$	1 mark for correct application of distributive property 1 mark for correct application of distributive property
b)	615432 and 338190 are divisible by 2 and 3	1 mark for use of rules of divisibility of 2 and 3 1 mark for correct answer
c)	i) Set B = {2, 3, 5, 7, 11} Set B = set of prime numbers less than 12 OR Set B = set of first five prime numbers ii) Set A = $\{x : x$ is a number divisible by four and less than 25) Set A = {4, 8, 12, 16, 20}	1 mark for rewriting correctly in descriptive form 1 mark for rewriting correctly in tabular form
d)	HCF: $3^2 = 9$	1 mark for method, that is HCF is the product of the lowest powers of the common prime factors 1 mark for correct answer
e)	Total ratio: 3 + 5 = 8 Salman's share of profit $= \frac{2}{6} \times 6400$ = Rs 2400	1 mark for method, that is which ratio corresponds to Salman's share 1 mark for correct answer

f)	$x : 15 = 25 : 75$ $x = \frac{25 \times 15}{75}$ $\therefore x = 5$	1 mark for converting ratios into fractions 1 mark for correct answer
g)	I) Accept any correct finite set. ii) Accept any correct equal set. iii) Accept any correct equivalent set.	1 mark for correct answer 1 mark for correct answer 1 mark for correct answer
h)	2 | 12, 16, 20 LCM = 2 x 2 x 2 x 2 x 3 x 5 $\therefore$ LCM of 12, 16, 20 = 240	1 mark for using only prime numbers and in correct sequence 1 mark for accurate division 1 mark for correct answer
i)	HCF × LCM = Product of numbers 6 x 36 = 18 × x $x = \frac{6 \times 36}{18}$ $\therefore x = 12$	1 mark for using the rule 1 mark for forming correct equation 1 mark for correct answer
j)	Profit = SP – CP = 16640 – 16000 = 640 Profit % = $\frac{640}{16000} \times 100$ $\therefore$ profit % = 4 %	1 mark for finding the profit 1 mark for calculating profit % 1 mark for correct answer
k)	[– 8 – 25] + [– 8] = – 33 – 8 = – 41	1 mark for correct usage of signs in addition and subtraction of integers 1 mark for step by step calculation 1 mark for correct answer
l)	$\frac{-15 + [-6]}{6 + [-9]}$ $= \frac{-15 - 6}{6 - 9}$ $= \frac{-21}{-3} = 7$	1 mark for correct usage of signs in addition and subtraction of integers involving brackets 2 marks for correct answer
		[Total Marks: 30]

	Section C	**Marking Criteria**
Q3 a)	Largest 5-digit number: 99999 10 more than the smallest 4-digit number: 1000 + 10 = 1010 Difference between the two numbers: = 99999 – 1010 = 98989	1 mark for correct number 2 marks for converting sentence into math equation to find number 1 mark for correct answer

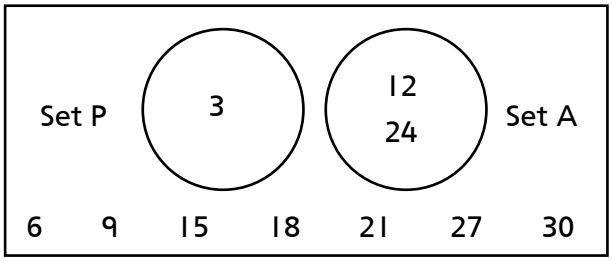
b)	First number: 800 Second number: 800000 i) Sum of numbers: 800800 ii) Difference of numbers: 799200	1 mark for first place value of 8 1 mark for second place value of 8 1 mark for correct answer 1 mark for correct answer
c)	5 kg : 625 g 5000 : 625 [1 kg = 1000 g] [∴ 5 kg = 5000 g] ∴ simplest form is 8 : 1	1 mark for converting to same unit that is kg into g 1 mark for ratio in simplest form
		[Total Marks: 10]
Q4 a)	i) + 4 ii) − 100 dollars iii) + 15 min	1 mark for correct answer 1 mark for correct answer 1 mark for correct answer
b)	− 29 − 256 = − 285	2 marks for correct usage of signs in multiplication and division 1 mark for correct answer
c)	Set A = {4, 5, 6} Subsets of A = 2^3 = 8 Power Set P = { }, {4}, {5}, {6}, {4, 5}, {4, 6}, {5, 6}, {4, 5, 6}	1 mark for method that is how many subsets will be formed 3 marks for writing all eight subsets correctly
		[Total Marks: 10]
Q5 a)	2 | 12, 15, 18 LCM of 12, 15, 18 = 180 seconds Convert sec into min: 180 ÷ 60 = 3 min ∴ bells will toll together at 10:03 a.m.	1 mark for method, that is to find LCM 1 mark for using only prime numbers 1 mark for correct LCM 1 mark for conversion of units 1 mark for correct answer
b)	i) number of people : people who left 1500 : 800 15 : 8 ii) Number of people who stayed: 1500 − 800 = 700 people who left : people who stayed 800 : 700 8 : 7	1 mark for writing correct ratio 1 mark for expressing in simplest form 1 mark for finding how many people stayed 1 mark for writing correct ratio 1 mark for expressing ratio in simplest form
		[Total Marks: 10]

Q6 a)	The two lengths: 74 − 2 = 72 cm 92 − 2 = 90 cm HCF of 72, 90 = 2 × 3 × 3 ∴ HCF = 18 [Accept any method to find HCF; factorisation or long division.] ∴ the maximum length should be 18 cm Check: 74 ÷ 18 = 4 rem 2 92 ÷ 18 = 5 rem 2	1 mark for finding the two lengths 1 mark for finding HCF 2 marks for using only prime numbers and accuracy 1 mark for correct answer
b)	Number of men who left: 9 − 4 = 5 men : days 9 : 15 5 : x $\frac{9}{5} = \frac{x}{15}$ ∴ x = 27 ∴ 5 men will take 27 days to complete the job	1 mark for method 2 marks for method, that is less number of men will take more days, therefore, men are inversely proportional to days 1 mark for writing correct fraction 1 mark for correct answer
		[Total Marks: 10]
Q7 a)	Loss = CP − SP = Rs (10350 − 8280) = Rs 2070 Loss % = $\frac{2070}{10350} \times 100$ ∴ loss % = 20 %	1 mark for finding loss 1 mark for method, that is loss % is calculated on CP 1 mark for correct answer
b)	Time = $\frac{\text{Simple interest} \times 100}{\text{Principle} \times \text{Rate}}$ = $\frac{100 \times 100}{500 \times 5}$ Time = 4 years	1 mark for using correct formula for finding time 1 mark for correct cancellation 1 mark for correct answer
c)	*Loss* = $\frac{5}{100} \times 150$ = Rs 7.50 SP = CP − loss = Rs (150 − 7.50) ∴ selling price of the toy = Rs 142.50	1 mark for finding loss 1 mark for correct answer 1 mark for finding relation between SP, CP and loss 1 mark for correct answer
		[Total Marks: 10]

Marking Scheme
Model Paper I
Annual Examination
Mathematics

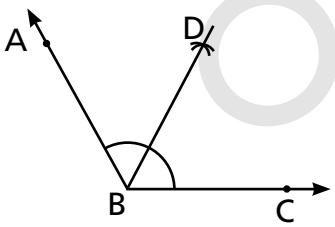
	Section A				Marking Criteria
Q1	i. B ii. A iii. A iv. B v. C	vi. C vii. C viii. B ix. A x. B	xi. C xii. C xiii. B xiv. A xv. B	xvi. B xvii. D xviii. B xix. D xx. B	I mark for each correct answer
					[Total Marks: 10]

	Section B	Marking Criteria
Q2 a)	$\frac{x}{10} = \frac{3}{5}$ $\therefore x = 6$	I mark for method, that is writing correct fraction I mark for correct answer
b)	Total ratio = 3 + 2 + 1 = 6 Fauzia's will have $\frac{2}{6}$ × 90 pencils = Rs 30 Pencils	I mark for finding total ratio and writing correct fraction of share I mark for correct answer
c)	$m\angle$ ABC = 60° $\angle$ ABC is an acute angle.	I mark for measuring angle correctly I mark for naming angle correctly
d)	1 right angle = 90° $\therefore 2\frac{1}{2}$ right angles will be: 90° + 90° + 45° = 225°	I mark for method, that is correct addition of angles I mark for correct answer
e)	Each side = 3 m 50 cm, or 350 cm or 3.5 m [Accept any unit used] Area = $l \times b$ = 3.5 m × 3.5 m $\therefore$ area = 12.25 m^2	I mark for use of correct formula for area I mark for correct answer
f)	Volume = $l \times b \times h$ = 9 × 7 × 6 $\therefore$ volume of the tank = 378 m^2	I mark for use of correct formula for volume I mark for correct answer

g)		1 mark for correct elements of Set P 1 mark for correct elements of Set A 1 mark for writing remaining elements in universal set
h)	$(a \times b) \times c = a \times (b \times c)$ $(4 \times 5) \times 6 = 4 \times (5 \times 6)$ $120 = 120$ LHS = RHS [Accept numbers in any order.]	1 mark for using correct associative property of multiplication 1 mark for substituting correct values and calculation 1 mark for correct answer
i)	$750 - 510 = 240$ $\% = \frac{240}{750} \times 100$ $= 32\%$	1 mark for finding out number of students who did not issue books 1 mark for writing correct fraction 1 mark for correct answer
j)	$2x + 3x - 3y - y + z - z$ $= 5x - 4y$	1 mark for collecting like terms 1 mark for simplification 1 mark for correct answer
k)	$8x + 8 = x + 15$ $8x - x = 15 - 8$ $\therefore x = 1$	1 mark for opening brackets 1 mark for transposition and simplification of terms 1 mark for correct answer
l)	Total ratio: 1 + 2 + 3 = 6 Largest angle: $\frac{3}{6} \times 180°$ $\therefore$ largest angle = 90°	1 mark for finding total ratios and using the rule that sum of interior angles of a triangle = 180° 1 mark for writing correct fraction 1 mark for correct answer.
		[Total Marks: 30]

	Section C	**Marking Criteria**
Q3 a)	$72 = 2^3 \times 3^2$ $252 = 2^2 \times 3^2 \times 7$ $600 = 2^3 \times 3 \times 5^2$ $\therefore$ HCF of 72, 252, 600 = $2^2 \times 3$	1 mark for factorisation of each number 3 marks for expressing each number in index notation correctly 1 mark for correct answer

b)	LCM = 2 × 3 × 3 × 7 × 11 = 1386 sec Or 1386 ÷ 60 = 23 min All three will flash together after 23 min	2 marks for method, that is to find LCM 2 marks for calculating LCM step-by-step correctly 1 mark for correct answer
		[Total Marks: 10]
Q4 a)	276 − 132 + 310 − 494 = −40	1 mark for correct usage of signs in addition and subtraction of integers 2 marks for step-by-step accuracy and answer
b)	−6 × 100 − 400 = −1000	1 mark for correct usage of signs in multiplication and division 2 marks for step-by-step accuracy and answer
c)	− 21− 5 ÷ (−5) ×100 − 375 =− 21 + 1 × 100 − 375 = −296	2 marks for opening brackets, use of BODMAS rule, and correct usage of signs. 1 mark for step-by-step calculation 1 mark for correct answer
		[Total Marks: 10]
Q5 a)	$\frac{a^3b^2c}{3b}$ $\frac{2^3\times(-3)^2\times(-4)}{3\times(-3)}$ = 32	1 mark for correct substitution of values 1 mark for correct answer
b)	135° = x + 50° x = 85° [Accept any method, that is finding supplementary angle and sum of angles of a triangle is 180°.]	1 mark for correct statement Exterior ∠ = Sum of opposite interior ∠s 1 mark for transposition of terms 1 mark for correct answer
c)	2 (x − 6) = 18 x = 5	2 marks for writing step-by-step algebraic terms and final equation 1 mark for opening brackets 1 mark for transposition of terms 1 mark for correct answer
		[Total Marks: 10]

Q6 a)	Area = $l \times b$ Area of tile = 2500 cm^2 Area of pavement = 250000 cm^2 Number of tiles required = 250000 ÷ 2500 = 100 tiles	1 mark for finding area of tile by using correct formula and unit 1 mark for correct answer 1 mark for finding area of pavement 1 mark for dividing 2 areas 1 mark for correct answer
b)	Length of side = 0.9 m or 90 cm Volume of larger cube = $l \times b \times h$ = 90 × 90 × 90 = 729000 cm^3 Volume of smaller cube = 27 cm^3 Number of small cubes that can be cut: = 729000 ÷ 27 = 27000 cubes	1 mark for usage of correct unit and formula 1 mark for correct answer 1 mark for correct answer 1 mark for method, that is dividing the two volumes 1 mark for correct answer
		[Total Marks: 10]
Q7 a)	$\frac{5}{6}$ of 90° = 75° ∴ reflex angle = 360° − 75° = 285°	1 mark for finding the value of five-six of a right angle and subtracting it from 360° to find the reflex angle 1 mark for correct answer
b)	i) Tuesday ii) 150 + 250 + 225 + 100 + 150 = 875 iii) 225 − 150 = 75 iv) Tuesday and Wednesday	1 mark for correct answer 2 marks for addition and correct answer 1 mark for correct answer 1 mark for correct answer
c)	$\overline{BD}$ is the bisector of ∠ ABC.  	1 mark for drawing 120° accurately 2 marks for bisecting the angle accurately
		[Total Marks: 10]

Marking Scheme

Model Paper 2
Annual Examination
Mathematics

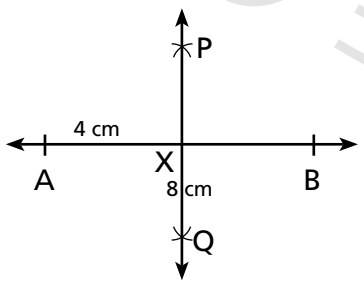
	Section A				Marking Criteria
Q1	i. D	vi. A	xi. B	xvi. D	
	ii. A	vii. A	xii. A	xvii. D	
	iii. B	viii. D	xiii. B	xviii. D	1 mark for each correct answer
	iv. A	ix. C	xiv. A	xix. A	
	v. B	x. C	xv. B	xx. B	
					[Total Marks: 20]

	Section B	Marking Criteria
Q2		
a)	Total ratio: 7 + 5 = 12 Number of girls: $\frac{5}{12} \times 300$ ∴ number of girls in school = 125	1 mark for finding which ratio corresponds to the number of girls 1 mark for correct answer
b)	Savings = 6000 – 4500 = 1500 Savings : Earnings 1500 : 6000 1 : 4	1 mark for finding the savings and writing correct ratio 1 mark for writing ratio correctly in lowest form
c)	$m\angle$LMN = 100° $m\angle$LMN is an obtuse angle.	1 mark for measuring angle correctly 1 mark for naming angle correctly
d)	$m\angle$ ABC = 65° $m\angle$ XYZ = 55° $m\angle$ABC $\boxed{>}$ $m\angle$XYZ	1 mark for measuring angles correctly 1 mark for using correct symbol
e)	Length = $\frac{\text{Area}}{\text{Breadth}}$ Length = 1350 ÷ 30 ∴ length of the garden = 45 m	1 mark for using correct formula for finding length 1 mark for correct answer
f)	Volume of a cube: 216 cm^3 Volume of a cuboid: l × b × h Volume of a cuboid: 8 × 6 × 4 = 192 cm^3 ∴ volume of cube is greater than the volume of the cuboid.	1 mark for using correct formula to find volume 1 mark for correct answer and for comparison

g)	Set A = $\{x, y, z\}$ Subsets of A: { }, $\{x\}$, $\{y\}$, $\{z\}$, $\{x, y\}$, $\{x, z\}$, $\{y, z\}$ $\{x, y, z\}$ [Accept any six subsets.]	1 mark each for any two subsets 2 marks for all six subsets
h)	a + (b + c) = (a + b) + c 50 + (27 + 33) = (50 + 27) + 33 110 = 110 LHS = RHS	1 mark for using correct associative property of addition 1 mark for substituting values in any order and calculation 1 mark for correct answer
i)	i) $\frac{25}{100}$ = Rs 160 [Accept any other appropriate method: 25% = $\frac{1}{4}$ of 640] ii) Money left: Rs (640 − 160) = Rs 480	1 mark for correct method to find amount spent 1 mark for correct answer 1 mark for correct answer
j)	$12a - 2b + 3$ $-8a + 3b + 6$ + − − $20a - 5b - 3$ [Accept the other method also: $(12a - 2b + 3) - (-8a + 3b + 6)$]	1 mark for writing correct expression first and for changing signs of second 2 marks for correct answer
k)	$2x - 14 = 5x - 15$ $2x - 5x = -15 + 14$ $\therefore x = \frac{1}{3}$	1 mark for opening brackets 1 mark for transposition of terms 1 mark for correct answer
l)	$x + 56° + 56° = 180°$ $\therefore x = 68°$	2 marks for using the rule that sum of angles of a triangle is 180° and that base angles are equal 1 mark for correct answer
		[Total Marks: 30]

	Section C	**Marking Criteria**
Q3		
a)	Prime factors of 16 = 2 × 2 × 2 × 2 = 2^4 Prime factors of 24 = 2 × 2 × 2 × 3 = $2^3 \times 3$ Prime factors of 30 = 2 × 3 × 5 Prime factors of 36 = 2 × 2 × 3 × 3 = $2^2 \times 3^2$ ∴ LCM = $2^4 \times 3^2 \times 5$ ∴ LCM of 16, 24, 30, 36 = 720	1 mark for correct factorisation of each number 3 marks for accuracy and expressing each number in index notation 1 mark for correct answer

b)	996 − 6 = 990 246 − 6 = 240 2 | 990, 240 | [Accept any method; factorisation or long division method.] HCF of 990 and 240 = 2 × 3 × 5 = 30 ∴ the greatest number is 30	1 mark for method and finding two numbers 1 mark for finding HCF to find the greatest number 2 marks for using only prime numbers and accuracy 1 mark for correct answer
		[Total Marks: 10]
Q4 a)	i) 179 − 279 $\boxed{<}$ 25 × 4 ii) − 80 − 80 $\boxed{=}$ − 160	1 mark for correct answer 1 mark for correct answer
b)	[−3 − 10] + [18 − 25] = − 20	1 mark for correct usage of signs in addition and subtraction of integers 1 mark for step-by-step calculation 1 mark for correct answer
c)	[−79 + 6 × 9] + 5 − 11 = − 31	2 marks for method that is opening brackets, use of BODMAS rule, and correct usage of signs 2 marks for step-by-step calculation 1 mark for correct answer
		[Total Marks: 10]
Q5 a)	$\frac{3x^2yz}{x+y+z}$ $= \frac{3(-1)^2 \times 5 \times 2}{(-1)+5+2}$	1 mark for correct substitution of values 1 mark for correct answer
b)	$x = 60° + 45°$ $\therefore x = 105°$ [Accept other method: 180° − 75° = supplementary angle.]	1 mark for correct statement Exterior angle = Sum of opposite interior angles OR Supplementary angles add up to 180° 1 mark for using correct interior angles 1 mark for correct answer
c)	$x + (x + 1) + (x + 2) = 186$ $3x = 186 - 3$ $x = 61$ ∴ 1st number = 61 ∴ 2nd number = 61 + 1 = 62 ∴ 3rd number = 61 + 2 = 63	2 marks for writing step-by-step terms and equation 1 mark for step-by-step calculation 2 marks for all three correct answers
		[Total Marks: 10]

Q6		
a)	Area of outer rectangle = $l \times b$ = 16 × 14 = 224 m^2 Length of inner rectangle = 16 − 2 = 14 m Breadth of inner rectangle = 14 − 2 = 12 m Area of inner rectangle: 167 m^2 Area of Path: Area outer rectangle − Area of inner rectangle Area of Path = (224 − 168) m^2 ∴ area of path = 56 m^2	1 mark for using correct formula for finding area 1 mark for correct answer 1 mark for finding dimensions of inner rectangle 1 mark for correct answer 1 mark for method of finding area of path 1 mark for correct answer
b)	Volume = $l \times b \times h$ Volume of tank: 58500 cm^3 Amount of water required to fill the tank: $= \frac{58500}{1000}$ = 58.5 litres	1 mark for using correct formula to find volume 1 mark for correct answer 1 mark for method, that is to divide by 1000 as 1 litre = 1000 cm^3 1 mark for correct answer
		[Total Marks: 10]
Q7		
a)	x + 52° = 90° ∴ x = 38°	1 mark for method, that is complementary angles add up to 90° 1 mark for correct answer
b)	i) 6 ii) Science iii) Social Studies iv) 6 + 6 + 7 + 10 + 9 + 4 = 42	1 mark for correct answer 1 mark for correct answer 1 mark for correct answer 2 marks for addition of correct values and correct answer
c)	$\overline{PQ}$ is the bisector of line $\overline{AB}$ at point X.  	1 mark for drawing accurate line $\overline{AB}$ = 8 cm and marking a point X such that $m\ \overline{AX}$ = 4 cm 2 marks for drawing the perpendicular accurately at point X
		[Total Marks: 10]

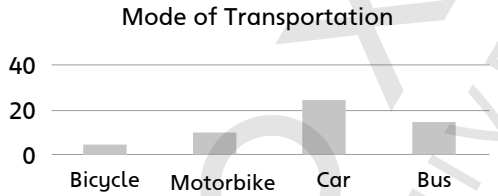
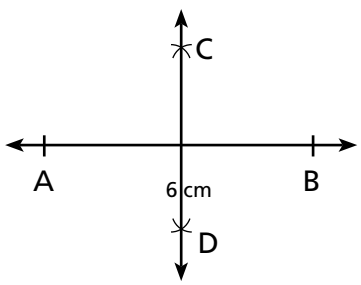
Marking Scheme
Model Paper 3
Annual Examination
Mathematics

	Section A				Marking Criteria
Q1	i. C	vi. C	xi. B	xvi. B	1 mark for each correct answer
	ii. B	vii. B	xii. A	xvii. A	
	iii. D	viii. D	xiii. C	xviii. B	
	iv. A	ix. B	xiv. B	xix. D	
	v. D	x. A	xv. D	xx. D	
					[Total Marks: 20]

	Section B	Marking Criteria
Q2 a)	$\frac{64}{P} = \frac{4}{8}$ $\frac{64 \times 8}{4} = P$ $\therefore P = 128$ [Accept any other appropriate method used.]	1 mark for method that is writing the correct fraction 1 mark for correct answer
b)	Total ratio: 2 + 3 = 5 Length of bigger piece of rope = $\frac{3}{5} \times 30 = 18$ m	1 mark for finding total ratio and correct ratio for bigger piece 1 mark for correct answer
c)	$m\angle$PQR = 135° $\angle$PQR is an obtuse angle	1 mark for measuring correct angle 1 mark for naming angle correctly
d)	$m\angle$RST = 120° $m\angle$MNO = 140° $\angle$RST $\boxed{<}$ $\angle$MNO	1 mark for measuring angles correctly 1 mark for use of correct symbol
e)	Perimeter = 2 (l + b) = 2 (80 + 65) $\therefore$ Perimeter of the field = 290 m	1 mark for using correct formula to find perimeter 1 mark for correct answer
f)	Volume = l × b × h Height = $\frac{v}{l \times b}$ = $\frac{810}{15 \times 9}$ $\therefore$ height = 6 m	1 mark for using correct formula to find height 1 mark for correct answer

g)	Set T = {letters of the alphabet} i) Subset of vowels: Set V = {a, e, i, o, u} ii) Subset of letters after t: Set T = {u, v, w, x, y, z} iii) Subset of first six consonants: Set C = {b, c, d, f, g, h}	1 mark for writing correct vowels 1 mark for writing all six letters after t 1 mark for writing first six consonants correctly
h)	a x (b − c) = (a x b) − (a × c) 100 × (300 − 200) = (100 × 300) − (100 × 200) 10 000 = 10 000 LHS = RHS [Accept numbers used in any order.]	1 mark for using correct distributive property of multiplication over subtraction 1 mark for substituting values in correct order 1 mark for correct answer
i)	Simple Interest = $\frac{P \times R \times T}{100}$ SI = $\frac{5000 \times 5 \times 2}{100}$ = Rs 500 Amount = P + SI = Rs (5000 + 500) ∴ amount = Rs 5500	1 mark for using correct formula to find simple interest 1 mark for correct answer 1 mark for finding amount by adding SI to the principal
j)	$x^2 + xy + y^2$ $2x^2 - 3xy + 4y^2$ $-x^2 + xy - 2y^2$ $2x^2 + xy - 3y^2$	1 mark for method that is write like terms one under the other 2 marks for correct answer
k)	$\frac{9x - 30}{5} = 3x$ $9x - 15x = 30$ $\therefore x = -5$	1 mark for finding LCM 1 mark for transposition of terms 1 mark for correct answer
l)	One of the base angles = x ∴ the other base angle will also be x $x + x + 120° = 180°$ $\therefore x = 30$	2 marks for using the rule that the base angles in an isosceles triangle are equal sum of angles in a triangle is 180° 1 mark for correct answer
		[Total Marks: 30]

	Section C	Marking Criteria
Q3 a)	$\begin{array}{r\|l} 2 & 32, 36, 48, 96 \end{array}$ LCM = 2 × 2 × 2 × 2 × 2 × 3 × 3 ∴ LCM = $2^5 \times 3^2$ ∴ LCM of 32, 36, 48, 96 = 288 ∴ the smallest number = 288 − 23 = 265	1 mark for method that find the LCM to find the smallest number 2 marks for step-by-step calculation 1 mark for correct answer 1 mark for method and correct answer
b)	$\begin{array}{r\|l} 2 & 140, 168, 210 \end{array}$ HCF = 2 × 7 ∴ HCF of 140, 168, 210 = 14 i) Greatest length of each smaller piece 14 cm ii) Number of pieces: 140 ÷ 14 = 10 pieces 168 ÷ 14 = 12 pieces 210 ÷ 14 = 15 pieces ∴ total number of pieces: 10 + 12 + 15 = 37	2 marks for method that is find the HCF to find the greatest length 1 mark for correct answer 1 mark for method to find the total number of pieces that can be cut from each length 1 mark for correct answer
		[Total Marks: 10]
Q4 a)	= 175 − 50 − 125 + 425 = 425	1 mark for correct usage of signs in addition and subtraction of integers 1 mark for step-by-step calculation 1 mark for correct answer
b)	= 10 × (−10) = −100	1 mark for correct usage of signs in multiplication and division 1 mark for step-by-step calculation 1 mark for correct answer
c)	$\frac{(-9) \times 9 - 9}{30}$ = − 3	1 mark for method that is opening brackets, use of BODMAS rule, and correct usage of signs 2 marks for step-by-step calculation 1 mark for correct answer
		[Total Marks: 10]
Q5 a)	$\frac{qt + tp + pq}{pqt}$ $= \frac{4 \times (5) + 5 \times (-3) + (-3) \times 4}{(-3) \times 4 \times 5}$ $= \frac{7}{60}$	1 mark for correct substitution of values 1 mark for correct answer

b)	$125° = x + 85°$ $\therefore x = 40°$	1 mark for correct statement that Exterior = sum of opposite interior angle 1 mark for transposition of terms 1 mark for correct answer
c)	$8x - 5y - [6x - 16y + 12x]$ $= 8x - 5y - 18x + 16y$ $= -10x + 11y$	2 marks for method that is opening brackets, use of BODMAS rule, and correct usage of signs 2 marks for step by step simplification 1 mark for correct answer
		[Total Marks: 10]
Q6 a)	Surface Area = $2(l \times h) + 2(b \times h)$ SA = $2(12 \times 8) + 2(10 \times 8)$ $\therefore$ surface area = 352 m^2 Cost of white-washing 4 walls = 352×100 = Rs 35200	2 marks for method that is find surface area of four walls only 2 marks for simplification and correct answer 1 mark for correct answer
b)	Length of the building: $480 \div 2 = 240$ m Breadth of the building: $480 \div 3 = 160$ m Volume = $l \times b \times h$ $= 480 \times 240 \times 160$ $\therefore$ volume = 18432000 m^3	1 mark for correct answer 1 mark for correct answer 1 mark for using formula for finding volume 2 marks for correct answer
		[Total Marks: 10]
Q7 a)	$x + 108° = 180°$ $\therefore x = 72°$	1 mark for method that is supplementary angles add up to 180° 1 mark for correct answer
b)	i)  ii) Total number of vehicles = 55 iii) Car	1 mark for heading and correct scale 2 marks for drawing bar graph 1 mark for correct answer 1 mark for correct answer
c)	$\overline{CD}$ is the bisector of line $\overline{AB}$.  	1 mark for drawing accurate line = 6 cm 2 marks for drawing a bisector of $\overline{AB}$
		[Total Marks: 10]

Evaluation Feedback to Student
Exemplar

Mid-Year Examination Model Paper 1 **Your Marks: /100**

	Section A			
	Question	**Your Answer**	**Correct Answer**	**Marks**
Q1 x)	Which is greater – 17 or – 7? **A** – 17 **B** They are equal **C** – 7 **D** None of the above	**A – 17** You gave the wrong answer thinking that 17 is greater than 7, which is only true when the given numbers are positive. Remember: greater a negative number smaller its value.	**C – 7**	[0/1]

	Section B			
	Question	**Your Answer**	**Correct Answer**	**Marks**
Q2 l)	In a sale, a shop reduced all their prices by 20%. Calculate the cost of an article whose original price was Rs 500	**Selling Price = Rs 480** Reduced price = Rs 20 SP = CP – Discount = Rs (500 – 20) = Rs 480 This is wrong because the discount was 20% and not Rs 20. Therefore, 20% discount was to be calculated on the marked price: $\frac{20}{100} \times 500$ = Rs 100	**SP = Rs 400**	[1/3]

	Section C			
	Question	**Your Answer**	**Correct Answer**	**Marks**
Q6 a)	There are 1920 workers in a factory, out of whom 1056 are men. Find the ratio of: i) the number of men to the number of women ii) the number of women to the number of workers	Number of women: 1920 – 1056 = 864 i) Ratio of women: men 864 : 1056 **9 : 11** Your calculation is correct but the order in which ratio was to be calculated is wrong. ii) Ratio of workers : women 1920 : 864 **20 : 9**	i) **men : women** **11 : 9** ii) **women : workers** **9 : 20**	[2/3] [2/2]

Teacher's Notes

Teacher's Notes