Math Understood 8
NCP SLO Matching Grid

OXFORD UNIVERSITY PRESS

Students' Learning Outcomes		Covered in MU 8
Domain A: Numbers and Operations		
M-08-A-01	Round off numbers up to 5 significant figures	17-18
M-08-A-02	Analyze approximation error when numbers are rounded off	19-20
M-08-A-03	Solve real-world word problems involving approximation	17-20
M-08-A-04	Convert Pakistani currency to well-known international currencies and vice versa	37-38
M-08-A-05	Differentiate between rational and irrational numbers	12-13
M-08-A-06	Represent real numbers on a number line and recognise the absolute value of a real number	14-15
M-08-A-07	Demonstrate the ordering properties of real numbers	14
M-08-A-08	Demonstrate the following properties: - closure property - associative property - existence of identity element - existence of inverses - commutative property - distributive property	14
M-08-A-09	Solve real-world word problems involving calculation with decimals and fractions	16
M-08-A-10	Identify and differentiate between decimal numbers as terminating (non-recurring) and non- terminating (recurring)	13
M-08-A-11	Calculate direct and inverse and compound proportion and solve real-world word problems related to direct, inverse and compound proportion. (using table, equation and graph)	28-36
M-08-A-12	Explain and calculate profit percentage, loss, percentage, and discount	38-44
M-08-A-13	Explain and calculate profit/markup, principal amount and markup rate	44-46
M-08-A-14	Explain insurance, partnership and inheritance	46-51
M-08-A-15	Solve real world word problems involving profit %, loss %, discount, profit, markup, insurance, partnership and inheritance	38-51

M-08-A-16	Find the square root of natural numbers, common fractions and decimal numbers (up to 6-digit)	20-23
M-08-A-17	Solve real-world word problems involving squares and square roots	
M-08-A-18	Recognise perfect cubes and find: - cubes of up to 2-digit numbers - cube roots of up to 5-digit numbers which are perfect cubes	23-27
M-08-A-19	Solve real-world word problems involving cubes and cube roots	
M-08-A-20	Describe sets using language (tabular, descriptive and set- builder notation) and Venn diagrams	2-11
M-08-A-21	Find the power set (P) of set A where A has up to four elements	3-4
M-08-A-22	Describe operations on sets and verify commutative, associative, distributive laws with respect to union and intersection	6-7
M-08-A-23	Verify De Morgan's laws and represent through Venn Diagram	9-10
M-08-A-24	Apply sets in real-life word problems	11
Domain B: Algebra		
M-08-B-01	Differentiate between an arithmetic sequence and a geometric sequence	61
M-08-B-02	Find terms of an arithmetic sequence using: - term to term rule - position to term rule	61-64
M-08-B-03	Construct the formula for the general term (nth term) of an arithmetic sequence	
M-08-B-04	Solve real life problems involving number sequences and patterns	
M-08-B-05	Recall the difference between: ➔ open and close sentences ➔ expression and equation ➔ equation and inequality	56
M-08-B-06	Recall the addition and subtraction of polynomials	57-60
M-08-B-07	Recall the multiplication of polynomials	57-60
M-08-B-08	Divide a polynomial of degree up to 3 by - a monomial - a binomial	58-60
M-08-B-09	Simplify algebraic expressions involving addition, subtraction, multiplication and division	57-60

M-08-B-10	Recognise the following algebraic identities and use them to expand expressions: $(a + b)^2 = a^2 + b^2 + 2ab$ $(a - b)^2 = a^2 + b^2 - 2ab$ $(a + b)(a - b) = a^2 - b^2$	65-68
M-08-B-11	Apply algebraic identities to solve problems like $(103)^2$, $(1.03)^2$, $(99)^2$, 101×99	
M-08-B-12	Factorize the following types of expressions: ● $ka + kb + kc$ ● $ac + ad + bc + bd$ ● $a^2 \pm 2ab + b^2$ ● $a^2 - b^2$ ● $a^2 \pm 2ab + b^2 - c^2$	70-72
M-08-B-13	Manipulation of algebraic expressions $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$ $(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$	68-69
M-08-B-14	Construct simultaneous linear equations in two variables	80-83
M-08-B-15	Solve simultaneous linear equations in two variables using: - elimination method - substitution method - graphical method division and factorisation method	
M-08-B-16	Solve real-world word problems involving two simultaneous linear equations in two variables	83-84
M-08-B-17	Identify base, index/exponent and its value	52
M-08-B-18	Deduce and apply the following laws of Exponents/ Indices: - Product Law - Quotient Law - Power Law	52-56
M-08-B-19	Solve simple linear inequalities i.e.,, $ax > b$ or $cx < d$ $ax + b < c$ $ax + b > c$	84-86
M-08-B-20	Represent the solution of linear inequality on the number line	

M-08-B-21	Recognise the gradient of a straight line. Recall the equation of horizontal and vertical lines	73-79
M-08-B-22	Find the value of 'y' when 'x' is given from the equation and vice versa	
M-08-B-23	Plot graphs of linear equations in two variables i.e., $y = mx$ and $y = mx + c$	
M-08-B-24	Interpret the gradient/slope of the straight line	
M-08-B-25	Determine the y- intercept of a straight line	
Domain C: Measurement		
M-08-C-01	State the Pythagoras theorem and use it to solve right angled triangles	109-111
M-08-C-02	Calculate the arc length and the area of the sector of a circle	112
M-08-C-03	Solve real life word problems using Pythagoras theorem	109-111
M-08-C-04	Calculate the surface area and volume of the pyramid, sphere, hemisphere and cone	113-119
M-08-C-05	Solve real life word problems involving the surface area and volume pyramid, sphere, hemisphere and cone	
Domain D: Geometry		
M-08-D-01	Rotate an object and find the centre of rotation by construction	103-104
M-08-D-02	Enlarge a figure (with the given scale factor) and find the centre and scale factor of enlargement	104-108
M-08-D-03	Describe chord, arcs, major and minor arc, semi-circle, segment of a circle, sector, central angle, secant, tangent and concentric circles	111-113
M-08-D-04	Construct a triangle when: -three sides (SSS) - two sides and included angle (SAS) - two angles and included side - a right- angled triangle when hypotenuse and one side (HS) are given	87-88
M-08-D-05	Construct different types of quadrilaterals (square, rectangle, parallelogram, trapezium, rhombus and kite).	89-96
M-08-D-06	Draw angle and line bisectors to divide angles and sides of triangles and quadrilaterals	89

M-08-D-07	Identify congruent and similar figures (in your surroundings), apply properties of two figures to be congruent or similar and apply postulates for congruence between triangles	97-103
M-08-E-01	Select and justify the most appropriate graph(s) for a given data set and draw simple conclusions based on the shape of the graph	124-125
M-08-E-02	Recognise the difference between discrete, continuous, grouped and ungrouped data	120-121
M-08-E-03	Calculate range, variance and standard deviation for ungrouped data and solve related real-world problems	125-126
M-08-E-04	Construct frequency distribution tables, histograms (of equal widths) and frequency polygons and solve related real-world problems	122-124
M-08-E-05	Explain and compute the probability of; mutually exclusive, independent, simple combined and equally likely events. (including real-world word problems	125-130
M-08-E-06	Perform probability experiments (for example tossing a coin, rolling a die, spinning a spinner etc. for certain number of times) to estimate probability of a simple event	
M-08-E-07	Compare experimental and theoretical probability in simple events	