

Mathematics 2019-2020

Scheme of work/Term wise syllabus breakup

Class 10

Term 1				
Strand	Unit	Topic	Objective	Time
Number Theory and Arithmetic	Sets Further Sets	<ul style="list-style-type: none"> Introduction to set notation Venn diagrams, universal set and compliment of a set. Intersection of two sets Combining universal set, compliment of a set, subset, intersection and union of a sets Application of Venn Diagrams in problem sums Formulas in set theory 	use language, notation and Venn diagrams to describe sets and represent relationships between sets Definition of sets: e.g. $A = \{x : x \text{ is a natural number}\}$ $B = \{(x, y) : y = mx + c\}$ $C = \{x : a \leq x \leq b\}$ $D = \{a, b, c, \dots\}$ Includes using Venn diagrams to solve problems. Notation: Number of elements in set A $n(A)$ "... is an element of ..." \in "... is not an element of ..." \notin Complement of set A A' The empty set \emptyset Universal set A is a subset of B $A \subseteq B$ A is a proper subset of B $A \subset B$ A is not a subset of B $A \not\subseteq B$ A is not a proper subset of B $A \not\subset B$ Union of A and B $A \cup B$ Intersection of A and B $A \cap B$ D-2 7th ed. CH 14 Ex 14 A,14 B,14 C D-4 7th ed. CH 2 Ex. 2A,2B	3
	Algebra and Function	<ul style="list-style-type: none"> Linear inequalities in two variables. 	Solving linear inequalities with one or two variable. Represent linear inequalities in one or two variables graphically. Finding the highest and least value.	2

		<ul style="list-style-type: none"> Application of system of linear inequalities in two variables in real world contexts. 	D-4 7th ed. CH 1 Ex 1A,1B	
	Function notation Inverse functions	<ul style="list-style-type: none"> Relations and Functions Functions involving higher order expressions Inverse functions 	use function notation, e.g. $f(x) = 3x - 5$, $f:x \mapsto 3x - 5$, to describe simple functions <ul style="list-style-type: none"> find inverse functions $f^{-1}(x)$. use the notation $f^{-1} = \frac{x+5}{3}$ and $f^{-1}:x \rightarrow \frac{x+5}{3}$ to describe their inverses D-2 7th ed.CH7 Ex 7A D-3 7th ed.CH2 Ex 2A,2B	2
Geometry and Measurement	Graphs of functions	<ul style="list-style-type: none"> Graphs of quadratic functions. Graph of cubic functions, reciprocal and exponential functions, Gradient of a curve. 	<ul style="list-style-type: none"> construct tables of values and draw graphs for functions of the form ax^n where a is a rational constant, and $n = -2, -1, 0, 1, 2, 3$, and simple sums of not more than three of these and for functions of the form kax where a is a positive integer interpret graphs of linear, quadratic, cubic, reciprocal and exponential functions solve associated equations approximately by graphical methods estimate gradients of curves by drawing tangents D-3 7th ed.CH 1Ex 1C D-3 7thed.CH 7 Ex7A,7B	4
	Further Trigonometry	<ul style="list-style-type: none"> Sine and cosine of obtuse angles Area of triangle Sine Rule 	<ul style="list-style-type: none"> extend sine and cosine functions to angles between 90° and 180° solve problems using the sine and cosine rules for any triangle and the formula area of triangle = $\frac{1}{2} ab \sin C$ 	3

		<ul style="list-style-type: none"> • Cosine Rule • Bearing • Three dimensional problems 	<ul style="list-style-type: none"> • Interpret and use three-figure bearings (Measured clockwise from the north, i.e. 000°–360°. e.g. Find the bearing of A from B if the bearing of B from A is 125°. Angles will be quoted in, and answers required in, degrees and decimals of a degree to one decimal place. • Solve simple trigonometrical problems in three dimensions (Calculations of the angle between two planes or of the angle between a straight line and plane will not be required.) <p>D-3 7th ed.CH 8 Ex 8A, 8B, 8C, 8D D-3 7th ed.CH 9 Ex 9B,9C</p>	
		Total weeks		14
Term 2				
Strand	Unit	Topic	Objective	Time
Geometry and Measurement	Geometrical properties of circles	<ul style="list-style-type: none"> • Symmetric properties of circles. • Angle properties of circle. 	<ul style="list-style-type: none"> • use the following symmetry properties of circles: • equal chords are equidistant from the centre • the perpendicular bisector of a chord passes through the centre • tangents from an external point are equal in length <p>D-3 7th ed. CH 13 Ex 13A,13B,13C</p>	3
Number Theory and Arithmetic	Matrices	<ul style="list-style-type: none"> • Introduction to Matrices • Addition and subtraction of Matrices • Matrix multiplication • Determinant of a Matrix 	<ul style="list-style-type: none"> • display information in the form of a matrix of any order • solve problems involving the calculation of the sum and product (where appropriate) of two matrices, and interpret the results • calculate the product of a matrix and a scalar quantity • use the algebra of 2×2 matrices including the zero and identity 2×2 matrices • calculate the determinant A and inverse A^{-1} of a non-singular matrix A 	2

		<ul style="list-style-type: none"> • Inverse of a Matrix • Application of Matrices 	<ul style="list-style-type: none"> • D-4 7th ed.CH 5Ex 5A-5E 	
Geometry and Measurement	Kinematics	<ul style="list-style-type: none"> • Application of Graphs in real world. . 	<ul style="list-style-type: none"> • Apply the idea of rate of change to easy kinematics involving distance–time and speed–time graphs, acceleration and deceleration. • Calculate distance travelled as area under a linear speed–time graph. D-3 7thed.CH 7 Ex7C	2
		<ul style="list-style-type: none"> • Revision 		7
		Total Weeks		14