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| ***SCHEME OF WORK FORM TWO MATHEMATICS TERM ONE YEAR 2019*** | | | | | | | |
| **WK/**  **NO.** | **L/**  **NO** | **TOPIC/**  **SUBTOPIC** | **LESSON / SPECIFIC**  **OBJECTIVES** | ***TEACHING / LEARNING***  ***ACTIVITIES*** | **MATERIALS**  **/**  **RESOURCES** | ***REFERE-***  ***NCES*** | **REMARKS** |
| 1 | 1 | **CUBES AND CUBE ROOTS**  Cubes by multiplication.  (*whole numbers)* | By the end of the lesson, the learner should be able to:  Find cubes of **whole numbers** by multiplication.  Find cubes of **negative numbers.** | Worked examples on  cubing algebraic terms;  Oral exercise;  Written exercise. |  | *KLB BK II*  *Pg 1* |  |
| 2 | Cubes by multiplication.  (*decimal* *numbers)* | By the end of the lesson, the learner should be able to:  Find cubes of positive and negative decimal numbers by **multiplication.** | Worked examples;  Supervised practice;  Written exercise. |  | *KLB BK II*  *Pg 1* |  |
| 3 | Using tables to find cubes.  *(Whole numbers)* | By the end of the lesson, the learner should be able to:  Use tables to find cubes of **whole numbers**. | Review standard form of numbers;  Guided discovery;  Supervised practice;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 2 - 3* |  |
| 4 | Using tables to find cubes.  *(1& 2dec. pl)* | By the end of the lesson, the learner should be able to:  Use tables to find cubes of numbers with **one /two decimal places.** | Worked examples;  Supervised practice;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 2 - 3* |  |
| 5 | Using tables to find cubes.  *(3,4 dec. pl)* | By the end of the lesson, the learner should be able to:  Use tables to find cubes of numbers having **three / four decimal places.** | Worked examples;  Supervised practice;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 2 - 3* |  |
| 6 | Cube roots by factor method. | By the end of the lesson, the learner should be able to:  Find cube roots by factor method.  Find cube roots of **algebraic terms.** | Questioning to review cube of numbers;  Oral exercise;  Written exercise;  Exercise review. |  | *KLB BK II*  *Pgs 3 - 4* |  |
| 2 | 1 | Using tables to find cube roots.  (*whole numbers)* | By the end of the lesson, the learner should be able to:  Use tables to find cube roots of numbers. | Guided discovery;  Supervised practice;  Oral exercise;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 3 - 4* |  |
| 2 | Using tables to find cube roots.  *(decimals)* | By the end of the lesson, the learner should be able to:  Use tables to find cube roots of decimal numbers. | Guided discovery;  Supervised practice;  Oral exercise;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 3 - 4* |  |
| 3 | **RECIPROCALS**  Reciprocal by division. | By the end of the lesson, the learner should be able to:  Find reciprocal of numbers by division. | Review recurring decimals;  Oral exercise;  Discover relation between size of a number and its reciprocal;  Assignment. |  | *KLB BK II*  *Pg 5* |  |
| 4 | Reciprocal from tables.  (whole numbers) | By the end of the lesson, the learner should be able to:  Use tables to find reciprocal of whole numbers. | Questioning to review standard form of numbers;  Guided discovery;  Supervised practice;  Oral exercise;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 5 - 6* |  |
| 5 | Reciprocal from tables.  (Decimal numbers) | By the end of the lesson, the learner should be able to:  Use tables to find reciprocal of decimal numbers. | Guided discovery;  Supervised practice;  Oral exercise;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 5 - 6* |  |
| 6 | **INDICES AND LOGARITHMS**  Bases and indices.  Law of multiplication. | By the end of the lesson, the learner should be able to:  Identify bases and indices.  Apply the law of multiplication of indices. | Q/A to review powers;  Exposition of bases and indices;  Guided discovery;  Worked examples;  Oral and written exercises. |  | *KLB BK II*  *Pgs 7* |  |
| 3 | 1 | Law of division. | By the end of the lesson, the learner should be able to:  Apply the law of division of indices. | Guided discovery;  Oral and written exercises. |  | *KLB BK II*  *Pgs 5 -6* |  |
| 2 | Multiplication & division. | Apply the laws of multiplication and division of indices. | Worked examples;  Written exercises;  Exercise review. |  | *KLB BK II*  *Pgs 5 -6* |  |
| 3 | Product of two powers. | By the end of the lesson, the learner should be able to:  Apply the law of product of two powers. | Guided discovery;  Worked examples;  Oral and written exercises. |  | *KLB BK II*  *Pgs 5 -6,*  *12 - 13* |  |
| 4 | Negative indices. | By the end of the lesson, the learner should be able to: Evaluate expressions having negative indices. | Guided discovery;  Oral and written exercises. |  | *KLB BK II*  *Pgs 5 -6,*  *12 - 13* |  |
| 5 | Negative indices with both multiplication and division. | By the end of the lesson, the learner should be able to: Evaluate further expressions having negative indices. | Worked examples;  Written exercises;  Exercise review. |  | *KLB BK II*  *Pgs 5 -6,*  *12 - 13* |  |
| 6 | Zero index & fractional indices. | By the end of the lesson, the learner should be able to: Evaluate expressions having zero index and fractional indices. | Guided discovery;  Worked examples;  Problem solving;  Oral and written exercises. |  | *KLB BK II*  *Pgs 8 - 13* |  |

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| 4 | 1 | Indices and square root. | By the end of the lesson, the learner should be able to:  Evaluate expressions square root. | Probing questions;  Guided discovery;  Problem solving;  Oral and written exercises. |  | *KLB BK II*  *Pgs 8 - 13* |  |
| 2 | Indices and cube root. | By the end of the lesson, the learner should be able to:  Evaluate expressions cube root. | Probing questions;  Guided discovery;  Problem solving;  Oral and written exercises. |  | *KLB BK II*  *Pgs 8 - 13* |  |
| 3 | Indices and other roots. | By the end of the lesson, the learner should be able to:  Evaluate expressions cube root. | Problem solving;  written exercises;  Exercise review. |  | *KLB BK II*  *Pgs 8 - 13* |  |
| 4 | **Logarithms.**  Logarithmic notations. | By the end of the lesson, the learner should be able to:  Interpret logarithmic notations. | Exposition of logarithmic notations.  Oral exercise. |  | *KLB BK II*  *Pgs 13 - 15* |  |
| 5 | Index form and logarithmic form. | By the end of the lesson, the learner should be able to: relate index form and logarithmic form. | Guided discovery;  Worked examples;  Problem solving;  Oral and written exercises. |  | *KLB BK II*  *Pgs 13 - 15* |  |
| 6 | Common logs of numbers between 1 and 9.99. | By the end of the lesson, the learner should be able to:  Read off common logs of numbers from tables. | Q/A to review std form;  Exposition of new terms;  Guided discovery;  Worked examples;  Problem solving;  Oral and written exercises. | Mathematical tables. | *KLB BK II*  *Pgs 15-18* |  |
| 5 | 1 | Common logs of numbers greater than 10. | By the end of the lesson, the learner should be able to:  Read off common logs of numbers from tables. | Worked examples;  Problem solving;  Oral and written exercises. | Mathematical tables. | *KLB BK II*  *Pgs 15 - 18* |  |
| 2 | Common logs of numbers less than 1. | By the end of the lesson, the learner should be able to:  Read off common logs of decimal numbers from tables. | Worked examples;  Problem solving;  Oral and written exercises. | Mathematical tables. | *KLB BK II*  *Pgs 18 - 20* |  |
| 3 | Multiplication of logs by a factor. | By the end of the lesson, the learner should be able to:  Multiply logs by simple factors. | Worked examples;  Problem solving;  Oral and written exercises. | Mathematical tables. | *KLB BK II*  *Pgs 18 - 20* |  |
| 4 | Division of logs by a factor. | By the end of the lesson, the learner should be able to:  Divide logs by simple factors. | Worked examples;  Problem solving;  Oral and written exercises. | Mathematical tables. | *KLB BK II*  *Pgs 18 - 20* |  |
| 5 | Multiplication of numbers using logs. | By the end of the lesson, the learner should be able to:  Multiply numbers using logs. | Exposition & discovery;  Worked examples;  Supervised practice;  Assignment. | Mathematical tables. | *KLB BK II*  *Pgs 20 - 24* |  |
| 6 | Division using logs. | By the end of the lesson, the learner should be able to:  Divide numbers using logs. | Exposition & discovery;  Worked examples;  Supervised practice.  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 20 - 24* |  |

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| 6 | 1 | Multiplication and division using logs. | By the end of the lesson, the learner should be able to:  Multiply and divide numbers using logs. | Supervised practice.  Written exercise;  Problem solving. | Mathematical tables. | *KLB BK II*  *Pgs 20 - 24* |  |
| 2 | Logs and powers. | By the end of the lesson, the learner should be able to:  Use logs to evaluate numbers with powers. | Guided discovery;  Worked examples;  Supervised practice.  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 23 - 24* |  |
| 3 | Logs and roots. | By the end of the lesson, the learner should be able to:  Use logs to evaluate roots of numbers. | Worked examples;  Written exercise;  Problem solving;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 23 - 24* |  |
| 4 | Miscellaneous operations using logs. | By the end of the lesson, the learner should be able to:  Use logs to work out large expressions. | Worked examples.  Group activities.  Exercise review. | Past exam papers.  Mathematical tables. | *KLB BK II*  *Pgs 23 - 24* |  |
| 5 | **GRADIENTS AND EQUATIONS OF LINES**  Positive gradient.  *(given two coordinates)* | By the end of the lesson, the learner should be able to:  Find gradient of a line given two coordinates. | Q/A to review co-ordinates;  Exposition;  Discover +ve gradient. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 27 - 34* |  |
| 6 | Negative gradient.  *(given two coordinates)* | By the end of the lesson, the learner should be able to:  Find gradient of a line given two coordinates.  Differentiate between a +ve and –ve gradient. | Q/A to review co-ordinates;  Exposition;  Discover –ve gradient. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 27 - 34* |  |
| 7 | 1 | Gradient of a line.  *(given equation of a line)* | By the end of the lesson, the learner should be able to:  Find gradient of a line given equation of the line. | Oral and written exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 27 - 34* |  |
| 2 | Equation of a line.  *(given two points)* | By the end of the lesson, the learner should be able to:  Form equation of a line given two points. | Guided discovery;  Supervised practice;  Exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 35 - 36* |  |
| 3 | Equation of a line.  *(given one point and gradient)* | By the end of the lesson, the learner should be able to:  Form equation of a line given one point and gradient. | Guided discovery;  Supervised practice;  Exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 34 - 37* |  |
| 4 | Equation of a line.  *(in the form*  *y = mx + c )*  Equation of a line.  *(in other forms)* | By the end of the lesson, the learner should be able to:  Form equation of a line given two points. | Guided discovery;  Supervised practice;  Exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 34 - 37* |  |
| 5,6 | C.A.T. & MID-TERM BREAK | |  |  |  |  |

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| 8 | 1 | Graph of a line. | By the end of the lesson, the learner should be able to:  Draw a graph of a straight line. | Drawing graphs;  Interpreting the graphs;  Supervised practice;  Exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 39 - 45* |  |
| 2 | Parallel lines. | By the end of the lesson, the learner should be able to:  Relate gradient to parallel lines. | Guided discovery;  Supervised practice;  Mixed exercises;  Exercise review. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 39 - 45* |  |
| 3 | Perpendicular lines. | By the end of the lesson, the learner should be able to:  Relate gradients to perpendicular lines. | Guided discovery;  Supervised practice;  Mixed exercises;  Exercise review. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 39 - 45* |  |
| 4 | **REFLECTION AND CONGRUENCE**  Line of symmetry. | By the end of the lesson, the learner should be able to:  Identify lines of symmetry. | Practical activities;  Exposition and guided discovery. | Plane models. | *KLB BK II*  *Pgs 46 - 48* |  |
| 5 | Reflection.  *(of a point)* | By the end of the lesson, the learner should be able to:  Determine co-ordinates of an image after reflection. | Practical activities;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 48-60* |  |
| 6 | Reflection.  *(of a line)* | By the end of the lesson, the learner should be able to:  Determine co-ordinates of an image of a line after reflection. | Practical activities;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 48-60* |  |

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| 9 | 1 | Reflection.  *(of a plane figure)* | By the end of the lesson, the learner should be able to:  Determine co-ordinates of an image figure after reflection. | Practical activities;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 48-60* |  |
| 2 | Locating mirror line. | By the end of the lesson, the learner should be able to:  Locate mirror line given co-ordinates of object and image. | Practical activities;  Geometrical constructions;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 50-60* |  |
| 3 | Geometrical deductions from reflection. | By the end of the lesson, the learner should be able to:  Make geometrical deductions from reflection of figures. | Geometrical constructions;  Making inferences. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 50-60* |  |
| 4 | **Congruence.** | By the end of the lesson, the learner should be able to:  Identify types of congruence. | Practical activities;  Geometrical constructions;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 61 - 63* |  |
| 5 | Congruent triangles. | By the end of the lesson, the learner should be able to:  State characteristics of congruent triangles. | Practical activities;  Geometrical constructions;  Supervised practice;  Written exercise. | Tracing paper;  Mirrors; Geoboard;  Graph books. | *KLB BK II*  *Pgs 63 - 70* |  |
| 6 | **ROTATION**  Centre and angle of rotation. | By the end of the lesson, the learner should be able to:  Identify centre and angle of rotation. | Practical activities;  Guided discovery;  Oral exercise. | Geoboard;  Graph books;  Manilla offcuts. | *KLB BK II*  *Pgs 71 - 75* |  |

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| 10 | 1 | Rotation in x-y plane.  *(+ ve angle)* | By the end of the lesson, the learner should be able to:  Rotate a figure thro’ a given + ve angle. | Practical activities;  Oral and written exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 75 - 78* |  |
| 2 | Rotation in x-y plane.  *(- ve angle)* | By the end of the lesson, the learner should be able to:  Rotate a figure thro’ a given -ve angle. | Practical activities;  Oral and written exercises. | Geoboard;  Graph books. | *KLB BK II*  *Pgs 75 - 78* |  |
| 3 | Order of rotational symmetry.  *(Point symmetry)* | By the end of the lesson, the learner should be able to:  Determine the order of rotational symmetry of a figure. | Practical activities;  Oral and written exercises. | Geoboard;  Graph books;  Manilla offcuts. | *KLB BK II*  *Pgs 78-84* |  |
| 4 | Order of rotational symmetry.  (*Axis symmetry)* | By the end of the lesson, the learner should be able to:  Determine the order of rotational symmetry of a figure. | Practical activities;  Oral and written exercises. | Geoboard;  Graph books;  Manilla offcuts;  Reaia.. | *KLB BK II*  *Pgs 78 - 84* |  |
| 5 | Rotation and congruency. | By the end of the lesson, the learner should be able to:  Relate congruency and rotation. | Guided discovery through practical activities. | Geoboard;  Graph books;  Manilla offcuts;  Reaia.. | *KLB BK II*  *Pgs 84-86* |  |
| 6 | **SIMILARITY AND ENLARGEMENT**  Similarity. | By the end of the lesson, the learner should be able to:  Identify similar figures. | Measure and record lengths of sides of figures;  Guided discovery for similarity. | Geoboard;  Graph books;  Manilla offcuts;  Geometrical sets. | *KLB BK II*  *Pgs 87 -88* |  |

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| 11 | 1 | Similar figures. | By the end of the lesson, the learner should be able to:  Solve problems involving similar figures. | Problem solving;  Exercise review. | Similar planes figures.  Manilla offcuts;  Tracing papers. | *KLB BK II*  *Pgs 88 - 96* |  |
| 2 | Centre of enlargement. | By the end of the lesson, the learner should be able to:  Locate c.o.e. given the object and image. | Geometrical construction;  Discussion;  Exercise;  Exercise review. | Similar planes figures.  Manilla offcuts;  Tracing papers. | *KLB BK II*  *Pgs 100- 104* |  |
| 3 | Linear scale factor of an enlargement.  *(greater than 1)* | By the end of the lesson, the learner should be able to:  Obtain l.s.f. of enlargement. | Measure and record lengths of sides of figures and their images;  Exposition;  Simple problems. | Geometrical sets;  Manilla offcuts; Tracing paper. | *KLB BK II*  *Pgs 97 - 100* |  |
| 4 | Linear scale factor of an enlargement.  *(less than 1)* | By the end of the lesson, the learner should be able to:  Obtain l.s.f. of enlargement. | Measure and record lengths of sides of figures and their images;  Simple problems. | Geometrical sets;  Manilla offcuts; Tracing paper. | *KLB BK II*  *Pgs 97 - 100* |  |
| 5 | Negative l.s.f. | By the end of the lesson, the learner should be able to:  Differentiate between +ve and –ve l.s.f.  Deduce effect of of –ve l.s.f. | Geometrical construction;  Making deductions;  Written exercise. | Geometrical sets. | *KLB BK II*  *Pgs 105 -6* |  |
| 6 | Negative fractional l.s.f. | By the end of the lesson, the learner should be able to:  Deduce effect of –ve fractional l.s.f. | Geometrical construction;  Making deductions;  Written exercise. | Geometrical sets. | *KLB BK II*  *Pgs 105 -6* |  |
| 12,  13 | *END OF TERM ONE EXAMINATIONS* | | | | | |  |

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| ***SCHEME OF WORK FORM TWO MATHEMATICS TERM TWO YEAR 2019*** | | | | | | | |
| 1 | 1 | **SIMILARITY AND ENLARGEMENT**  Area scale factor. | By the end of the lesson, the learner should be able to:  Relate l.s.f. to a.s.f. | Q/A to relate length and area;  Worked examples;  Supervised practice;  Written exercise. |  | *KLB BK II*  *Pgs 106-9, 111- 2* |  |
| 2 | Volume scale factor. | By the end of the lesson, the learner should be able to:  Relate l.s.f. to v.s.f. | Q/A to relate length and volume;  Q/A to review roots , squares and roots.  Worked examples;  Supervised practice;  Written exercise;  Mixed exercise review. | Cubes. | *KLB BK II*  *Pgs 109 -* |  |
| 3 | **THE PYTHAGORAS‘ THEOREM** | By the end of the lesson, the learner should be able to:  Apply the theorem in problem solving. | Probing questions;  Proof of the theorem;  Problem solving. | Cubes. | *KLB BK II*  *Pgs 119-122* |  |
| 4 | THE PYTHAGORAS‘ THEOREM | By the end of the lesson, the learner should be able to:  Apply the theorem in further problem solving. | Further problem solving. |  | *KLB BK II*  *Pgs 119-122* |  |
| 5 | **TRIGONOMETRIC RATIOS**  Tangent of an acute angle. | By the end of the lesson, the learner should be able to:  Define tangent of an angle.  Find tangent of an angle. | Guided practical activity;  Exposition of tan θ;  Worked examples;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 123 - 6* |  |
| 6 | Tangent of an acute angle by scale drawing. | By the end of the lesson, the learner should be able to:  Find tangent of an angle by scale drawing. | Guided practical activity;  Scale drawing. | Mathematical tables;  Geometrical set. | *KLB BK II*  *Pgs 123 - 6* |  |
| 2 | 1 | Table of tangents of angles (deg) | By the end of the lesson, the learner should be able to:  Read off tangent of an angle from tables. | Guided discovery;  Worked examples;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 126 - 132* |  |
| 2 | Table of tangents of angles *(deg with decimals)* | By the end of the lesson, the learner should be able to:  Read off tangent of an angle from tables. | Guided discovery;  Worked examples;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 123 - 6* |  |
| 3 | Table of tangents of angles (*deg and min)* | By the end of the lesson, the learner should be able to:  Read off tangent of an angle from tables. | Guided discovery;  Worked examples;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 123 - 6* |  |
| 4 | Sine of an angle. | By the end of the lesson, the learner should be able to:  Define sine of an angle.  Find sine of an angle. | Guided practical activity;  Exposition of tan θ;  Worked examples;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 132-4* |  |
| 5 | Sine of an angle by scale drawing. | By the end of the lesson, the learner should be able to:  Determine sine of an angle by scale drawing. | Scale drawing;  Exercises. | Geometrical sets. | *KLB BK II*  *Pgs 134-8* |  |
| 6 | Table of sines of angles. | By the end of the lesson, the learner should be able to:  Read off sine of an angle from tables. | Guided discovery;  Worked examples;  Written exercise;  Exercise review. | Mathematical tables. | *KLB BK II*  *Pgs 138- 144* |  |

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| 3 | 1 | Cosine of an angle. | By the end of the lesson, the learner should be able to:  Define cosine of an angle.  Find cosine of an angle. | Guided practical activity;  Exposition of tan θ;  Worked examples;  Written exercise. | Mathematical tables. | *KLB BK II*  *Pgs 132-4* |  |
| 2 | Cosine of an angle by scale drawing. | By the end of the lesson, the learner should be able to:  Determine cosine of an angle by scale drawing. | Scale drawing;  Exercises. | Geometrical sets. | *KLB BK II*  *Pgs 134-8* |  |
| 3 | Table of cosines of angles. | By the end of the lesson, the learner should be able to:  Read off sine of an angle from tables. | Guided discovery;  Worked examples;  Written exercise;  Miscellaneous exercise. | Mathematical tables. | *KLB BK II*  *Pgs 138- 144* |  |
| 4 | Sines and cosines of complementary angles. | By the end of the lesson, the learner should be able to:  Relate sines and cosines of complementary angles. | Guided discovery;  Worked examples;  Exercises. | Mathematical tables. | *KLB BK II*  *Pgs 145 - 6* |  |
| 5 | Sines, cosines and tangents of special angles. | By the end of the lesson, the learner should be able to:  Find sines, cosines and tangents of special angles. | Guided discovery;  Worked examples;  Exercises. |  | *KLB BK II*  *Pgs 147 - 8* |  |
| 6 | Sines, cosines and tangents of special complementary angles. | By the end of the lesson, the learner should be able to:  Find sines, cosines and tangents of special complementary angles. | Guided discovery;  Worked examples;  Exercises. |  | *KLB BK II*  *Pgs 147 - 8* |  |

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| 4 | 1 | Logs of sines, cosines and tangents. | By the end of the lesson, the learner should be able to:  Read off logs of sines, cosines and tangents of angles. | Q/A to review logs;  Worked examples;  Exercises. | Mathematical tables. | *KLB BK II*  *Pg 148* |  |
| 2 | Logs of sines, cosines and tangents.  (*problem solving)* | By the end of the lesson, the learner should be able to:  Use logs of sines cosines and tangents of angles in problem solving.. | Q/A to review logs;  Worked examples;  Exercises. | Mathematical tables. | *KLB BK II*  *Pgs 148 - 152* |  |
| 3 | Logs of sines, cosines and tangents.  (*further problem solving)* | By the end of the lesson, the learner should be able to:  Use logs of sines, cosines and tangents of angles in further problem solving. | Q/A to review logs;  Worked examples;  Exercises. | Mathematical tables. | *KLB BK II*  *Pgs 148 - 152* |  |
| 4 | **AREA OF A TRIANGLE**  *(Right angled & isosceles)* | By the end of the lesson, the learner should be able to:  Derive and use the formula A=½ a b sin C. | Q/A: - Review A = ½ b h ;  Derive A = ½ a b sin C Worked examples, Exercise.  Problem solving. |  | *KLB BK II*  *Pgs 155 - 6* |  |
| 5 | AREA OF A TRIANGLE  (*Scalene)* | By the end of the lesson, the learner should be able to:  Derive and use the formula A=½ a b sin C. | Worked examples;  Exercise;  Problem solving. |  | *KLB BK II*  *Pgs 155 - 6* |  |
| 6 | AREA OF A TRIANGLE  Hero’s formula. | Apply Hero’s formula  in problem solving. | Q/A to identify a scalene triangle. Expository approach – applying the formula. Worked examples.  Exercise. |  | *KLB BK II*  *Pgs 157 - 9* |  |
| 5 | 1 | **AREA OF QUADRILATERALS & POLYGONS**  Parallelogram and Rhombus. | Find area of a parallelogram and rhombus. | Q/A: Identifying a parallelogram, rhombus; Worked examples. |  | *KLB BK II*  *Pgs 160 -2* |  |
| 2 | Kite and trapezium. | Find the area of a kite and a trapezium. | Q/A;  Worked examples; Written exercise. |  | *KLB BK II*  *Pgs 162-4* |  |
| 3 | Polygons. | Find area of various polygons. | Worked examples.  Exercise. | Charts-polygons. | *KLB BK II*  *Pgs 157 - 9* |  |
| 4 | **AREA OF A CIRCLE**  Area of a sector. | Identify major and minor sectors of circles. Find the area of a sector. | Q/A: Arc of a semi- circle, quarter-circle, etc. Worked examples, Exercise. |  | *KLB BK II*  *Pg 167 - 8.* |  |
| 5 | Angle subtended at circle centre by an arc. | Find angle subtended at circle centre by an arc. | Review area of a sector;  Worked examples.  Exercise. |  |  |  |
| 6 | Area of an annulus. | Define an annulus. Find area of an annulus. | Problem solving- with emphasis on factoring out common terms. | Illustrative chart –annulus. | *KLB BK II*  *Pg 167 - 8.* |  |

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| 6 | 1 | Area of a segment. | Find the difference in area between that of a sector and a triangle. | Guided discovery;  Worked examples, Exercise. |  | *KLB BK II*  *Pg 169 - 172.* |  |
| 2 | Intersecting Circles. | Find area of common region between two circles. | Worked examples, Exercise.  Problem solving. |  | *KLB BK II*  *Pgs 173 -6* |  |
| 3 | Intersecting Circles. | Solve further problems related to intersecting circles. | Worked examples, Exercise.  Problem solving. |  | *KLB BK II*  *Pgs 173 -6* |  |
| 4 | **SURFACE AREA OF COMMON SOLIDS**  Prism. | Find the surface area of a prism. | Q/A:  Review surface area of a cylinder, prism.  Worked examples, Exercise. | Model prisms. | *KLB BK II*  *Pgs 177 - 8.* |  |
| 5 | Pyramid. | Find the surface area of a pyramid. | Worked examples;  Supervised practice;  Exercise. | Model pyramids. | *KLB BK II*  *Pgs 178-180* |  |
| 6 | Cone. | Deduce the formula  Area= π r2 + π r l. | Construction:  Making a cone from a sector.  Deduce  Area= π r2 + π r l. | Model cones. | *KLB BK II*  *Pgs 180- 1* |  |

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| 7 | 1 | Cone. | Find the surface area of a cone. | Examples.  Further problem solving. | Model cones. | *KLB BK II*  *Pgs 180- 1* |  |
| 2 | Frustum of a cone. | Define a frustum.  Find surface area of a frustum of a cone. | Q/A to review similar  figures.  Worked examples.  Exercises. | Model conical frustum. | *KLB BK II*  *Pgs 181 - 3* |  |
| 3 | Frustum of a prism. | Define a frustum.  Find surface area of a frustum of a prism. | Q/A to review similar  figures.  Worked examples.  Exercises. | Model prismatic frustum. | *KLB BK II*  *Pgs 181 - 3* |  |
| 4 | Sphere & Hemisphere. | Find surface area of a sphere/ hemisphere. | Probing questions leading to discoveries;  Examples.  Exercise. | Spheres / globe. | *KLB BK II*  *Pgs 183 - 5* |  |
| 5,6 | C.A.T.& MID-TERM BREAK | |  |  |  |  |

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| 8 | 1 | **VOLUME OF SOLIDS**.  Prism. | Find volume of prism. | Q/A: Identifying cross-section of a prism.  Worked examples.  Exercise. | Prisms. | | *KLB BK II*  *Pgs 186 -9* | | |  | | |
| 2 | Pyramid. | Find volume of a pyramid. | Activity: Forming a cube using three pyramids.  Q/A: Volume of a cube, hence deduce formula for volume of a pyramid.  Examples and exercise. | Manila papers, razor blades. | | *KLB BK II*  *Pgs 189 -191* | | |  | | |
| 3 | Cone. | Find volume of a cone. | Compare a cone with a pyramid;  Work out examples,  Supervised exercise. | Cones. | | *KLB BK II*  *Pgs 191 - 2* | | |  | | |
| 4 | Frustum of a cone. | Find volume of a frustum of a cone. | Review L.S.F. and V.S.F. and similar figures.  Worked examples & Exercise. | Model frustums. | | *KLB BK II*  *Pgs 192 -3* | | |  | | |
| 5 | Frustum of a pyramid. | Find volume of a frustum of a pyramid. | Review L.S.F. and V.S.F. and similar figures.  Worked examples & Exercise. | Model frustums. | | *KLB BK II*  *Pgs 192 -3* | | |  | | |
| 6 | Sphere and hemi-sphere. | Find volume of a sphere, hemi-sphere, etc. | Q/A: Surface area of a sphere, hemi-sphere.  Derive: V= 4/3 π r3  Examples;  Exercise;  Problem solving. |  | *KLB BK II*  *Pgs 195 - 6* | | |  | | |
| 9 | 1 | QUADRATIC EXPRESSIONS EQUATIONS  Expansion.  (Whole numbers) | Expand algebraic expressions that form quadratic expressions. | Worked examples;  Exercise |  | *KLB BK II*  *Pgs 201 - 5* | | |  | | |
| 2 | Expansion.  (With fractions) | Expand fractional algebraic expressions that form Quadratic expressions. | Q/A: Expanding simple algebraic expressions.  Worked examples, Exercise. |  | *KLB BK II*  *Pgs 201 - 5* | | |  | | |
| 3 | Quadratic Identity  (a + b)2 | Apply the quadratic identity (a + b)2 | Guided discovery;  Exposition. |  | *KLB BK II*  *Pg 204.* | | |  | | |
| 4 | Quadratic Identity  (a - b)2 | Apply the quadratic identity (a - b)2 | Guided discovery;  Exposition. |  | *KLB BK II*  *Pg 204.* | | |  | | |
| 5 | Quadratic Identity  (a + b) (a - b) | Apply the quadratic identity  (a + b) (a - b) |  |  |  | | |  | | |
| 6 | Factorisation. | Factorise quadratic expressions where coefficient of x2 is 1. | Guided discovery;  Worked examples;  Exercise. |  | | | *KLB BK II*  *Pgs 205-6* | | |  | | |

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| 10 | 1 | Factorisation. | Factorise quadratic expressions where coefficient of x2 is greater than 1. | Guided discovery;  Worked examples;  Exercise. |  | *KLB BK II*  *Pgs 206 -8* |  |
| 2 | Quadratic equations.  *(Coefficients whole nos.)* | Solve quadratic equations. | Worked examples;  Exercise and review. |  | *KLB BK II*  *Pgs 208 – 210.* |  |
| 3 | Quadratic equations.  *(Coefficients fractions)* | Solve quadratic equations. | Worked examples;  Exercise and review. |  | *KLB BK II*  *Pgs 208 – 210.* |  |
| 4 | Forming quadratic equations from given *+ ve roots.* | Form quadratic equations from known roots. | Work out examples;  Exercise. |  | *KLB BK II*  *Pgs 210-2* |  |
| 5 | Forming quadratic equations from given *- ve roots.* | Form quadratic equations from known roots. | Work out examples  Exercise. |  | *KLB BK II*  *Pgs 210-2* |  |
| 6 | Forming quadratic equations from given *both + ve and – ve* roots. | Form quadratic equations from known roots. | Work out examples*;*  Exercise. |  | *KLB BK II*  *Pgs 210-2* |  |

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| 11 | 1 | | Forming quadratic equations from given situations. | Form quadratic equations given situations. | Q/A: Express numbers, measurements algebraically;  Problem solving;  Exercise review. |  | | *KLB BK II*  *Pgs 208 – 210.* | |  | |
| 2 | | Forming quadratic equations from real life situations. | Form further quadratic equations given situations. | Problem solving;  Exercise review. |  | | *KLB BK II*  *Pgs 208 – 210.* | |  | |
| 3 | **INEQUALITIES**  Representation of inequalities. | | Define an inequality.  Use inequality symbols. | Q/A to identify symbols;  Oral exercise;  Written exercise. | Geo-board.  Graph papers. | *KLB BK II*  *Pgs 213-5* | |  | |
| 4 | Inequalities on a number line. | | Illustrate inequalities on a number line. | Examples of inequalities on a number line.  Oral exercise. |  |  | |  | |
| 5 | Solving simple inequalities. | | Solve simple inequalities. | Worked examples;  Exercise and review. | Geo-board.  Graph papers. | *KLB BK II*  *Pgs 215-6* | |  | |
| 6 | Multiplication of inequalities with a negative number. | | Multiply / divide an inequality by a –ve no. | Worked examples;  Exercise and review. |  | *KLB BK II*  *Pgs 216-7* | |  | |
| 12,  13 | *END OF TERM TWO EXAMINATIONS* | | | | | | | |  | |

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| ***SCHEME OF WORK FORM TWO MATHEMATICS TERM THREE YEAR 2019*** | | | | | | | |
| 1 | 1 | **INEQUALITIES**  Compound inequalities. | The learner should be able to:  Illustrate compound inequalities on a number line. | Give examples of compound statements and illustrate them on a number line.  Oral exercise;  Written exercise. | Geo-board. Graph papers. | *KLB BK II*  *Pgs 217-8* |  |
| 2 | Simultaneous inequalities. | Solve simultaneous inequalities and determine the integral values in the required region. | Q/A: Solve each inequality at a time, hence find the common solution / integral values.  Supervised practice.  Exercise. | Geo-board.  Graph papers. | *KLB BK II*  *Pgs 217-8* |  |
| 3 | Graphs of simple inequalities. | Represent inequalities graphically. | Q/A: Review equations of lines and their graphical representation.  Examples & Exercise. | Illustrative charts. | *KLB BK II*  *Pgs 219-223* |  |
| 4 | Inequality from a given graph. | Find the inequality represented by a graph. | Worked examples;  Exercise and review. |  | *KLB BK II*  *Pgs 219-223* |  |
| 5 | Graphs of compound inequalities. | Represent compound inequality statements graphically. | Review simple statements, represent them graphically and obtain the required region;  Worked examples;  Written exercise;  Exercise review. | Geo-board Graph papers. | *KLB BK II*  *Pgs 224-228* |  |
| 6 | Inequality statement from graphs. | Determine the statements that are represented graphically. | Worked examples.  Supervised practice.  Exercise.  Problem solving | Graph papers | *KLB BK II*  *Pgs 224-228* |  |
| 2 | 1 | LINEAR MOTION  Parameters of motion. | Define speed, velocity, distance, displacement, and acceleration.  Calculate parameters of motion. | Q/A: definitions of terms.  Deduce formulae of definitions.  Worked examples.  Exercise. | Geo-board Graph papers. | *KLB BK II*  *Pgs 228-230* |  |
| 2 | Velocity and acceleration. | Calculate velocity and acceleration of motions. | Probing questions;  Worked examples;  Exercise. | Graph papers. | *KLB BK II*  *Pgs 230-1* |  |
| 3 | Distance time graphs. | Plot and interpret distance time graphs. | Probing questions;  Worked examples;  Exercise. | Graph papers. | *KLB BK II*  *Pgs 224-228* |  |
|  | 4 | Velocity time graphs. | Plot and interpret velocity time graphs.  Make inferences from graphs. | Worked examples.  Oral exercise;  Written exercise;  Exercise review. | Geo-board.  Graph papers. | *KLB BK II*  *Pgs 224-228* |  | |
| 5 | Approaching bodies. | Solve problems on relative speeds of approaching bodies | Worked examples.  Exercise |  | *KLB BK II*  *Pgs 238-240* |  | |
| 6 | Overtaking bodies. | Solve problems on relative speeds of overtaking bodies. | Worked examples.  Oral exercise;  Written exercise;  Exercise review. |  | *KLB BK II*  *Pgs 238-240* |  | |

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|  | 3 | 1 | Bodies moving in opposite directions. | Solve problems on relative speeds of bodies moving in opposite directions. | Worked examples.  Oral exercise;  Written exercise;  Exercise review. |  | *KLB BK II*  *Pgs 238-240* |  |
| 2 | STATISTICS  Frequency distribution table. | Define statistics.  Explain importance of statistics.  Draw a frequency distribution table. | Q/A: Given examples of data that need to be organised to give information.  Discuss importance of statistics.  Activity;  Shoe size - no of students table.  Tabulation of results. | Statistical data from real life situations, e.g. HIV / AIDS figures. | *KLB BK II*  *Pgs 241-2* |  |
| 3 | Mean. | Define statistical mean of a set of data.  Find mean of a set of data. | Worked examples;  Supervised practice.  Exercise. |  | *KLB BK II*  *Pgs 243-4* |  |
| 4 | Mode and median. | Define mode and median of a set of data.  Find median of a given set of data. | Arranging data in ascending order and finding the median.  Exercise. |  | *KLB BK II*  *Pgs 244-5* |  |
| 5 | Median. | Find median of a given set of data. | Arranging data in ascending order and finding the median.  Exercise. |  | *KLB BK II*  *Pgs 244-7* |  |
| 6 | Classes of data. | Define class and class range.  Group data into reasonable classes. | Group activity - Involve students in identifying suitable class range, and grouping the data. |  | *KLB BK II*  *Pgs 244-7* |  |
|  | 4 | 1 | Mean of grouped data. | Find mean of grouped data. | Examples;  Problem solving. |  | *KLB BK II*  *Pgs 247-252* |  |
| 2 | Median of grouped data. | Find median of grouped data. | Worked examples.  Exercise. |  | *KLB BK II*  *Pgs 247-252* |  |
| 3 | Problems on grouped data. | Solve problems on grouped data. | Problem solving. |  | *KLB BK II*  *Pgs 247-252* |  |
| 4 | Bar graphs. | Represent information in form of bar graphs. | Examples;  Written exercise and review. | Charts. | *KLB BK II*  *Pgs 252 -3* |  |
| 5 | Interpreting bar graphs. | Interpret information  represented with bar graphs. | Examples;  Written exercise and review. |  |  |  |
| 6 | Pictograms. | Deduce information  represented with pictures.  Represent information in a pictogram. | Oral exercise. | Charts. | *KLB BK II*  *Pgs 253-* |  |
| 5 | 1 | Pie-charts. | Represent comparative information in form of pie charts. | Q/A:  Supervised exercise.  Written exercise. | Pie-charts. | *KLB BK II*  *Pgs 254-5* |  |
| 2 | Interpreting pie-charts. | Deduce information  represented with | Q/A:  Supervised exercise.  Written exercise. | Pie-charts. | *KLB BK II*  *Pgs 254-5* |  |
| 3 | Line graphs. | Draw line graphs. | Guided activity;  Supervised exercise. |  |  |  |
| 4 | Line graphs. | Interpret line graphs. | Discussion;  Assignment. | Graph papers. | *KLB BK II*  *Pgs 255-6* |  |
| 5 | Histograms. | Represent information  in a histogram. | Q/A -Identify class boundaries of the entries.  Draw the histogram of given data. | Graph papers. | *KLB BK II*  *Pgs 256-8* |  |
| 6 | Histograms. | Interpret histograms. | Discover effect of doubling the class size on the frequency.  Exercise. | Graph papers. | *KLB BK II*  *Pgs 258-9* |  |
| 6 | 1 | Frequency polygons. | Interpret frequency polygons. | Identify mid points of classes.  Join the tops of the bars of a histogram;  Written exercise. | Graph papers. | *KLB BK II*  *Pgs 258-9* |  |
| 2 | **ANGLE PROPERTIES OF A CIRCLE**  Parts of a circle.  Angle subtended by diameter on the circumference. | Identify an arc, chord, segments of a circle.  Deduce angle subtended by diameter on the circumference. | Q/A and discussion;  Measure angle subtended by diameter on the circumference. | Geometrical set. | *KLB BK II*  *Pgs 264-6* |  |
| 3 | Angle subtended by a chord on the circumference and at circle centre. | Deduce relation between angle subtended by a chord on the circumference and at circle centre. | Geometrical construction;  Discuss inferences.  Written exercise. | Geometrical set. | *KLB BK II*  *Pgs 266-8* |  |
| 4 | Angles in the same segment. | Deduce that angles in the same segment subtended by same chord are equal. | Geometrical construction;  Discuss inferences.  Written exercise. | Geometrical set. | *KLB BK II*  *Pgs 273-7* |  |
| 5 | Angles in different segments. | Deduce properties for angles in different segments subtended by same. | Geometrical construction;  Discuss inferences.  Written exercise. | Geometrical set. | *KLB BK II*  *Pgs 273-7* |  |
| 6 | Cyclic quadrilaterals. | Infer angle properties of cyclic quadrilaterals. | Geometrical construction;  Make inferences.  Written exercise.  Exercise review. | Geometrical set. | *KLB BK II*  *Pgs 278-9* |  |

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|  | 7 | 1 | Further cyclic quadrilaterals. | Apply angle properties of cyclic quadrilaterals in problem solving. | Worked examples;  Written exercises;  Exercise review. | Geometrical set. | *KLB BK II*  *Pgs 279-283* |  |
| 2 | **VECTORS**  Definition of a vector.  Definition of a scalar. | Define a vector.  Define a scalar.  Identify vector notation. | Discussion: quantities that have both size and direction.  Exposition: vector definition and notation. |  | *KLB BK II*  *Pgs 284-5* |  |
| 3 | Equivalent vectors. | Define magnitude of a vector.  Identify equivalent vectors.  Represent equivalent vectors diagrammatically. | From a wire cube students identify equivalent vectors and those that are not equivalent.  Oral exercise. | Wire cube. | *KLB BK II*  *Pgs 285-6* |  |
| 4 | Addition of vectors. | Define displacement  Identify initial and final points.  Add two vectors.  Add two vectors with directions reversed. | Worked examples;  Oral exercise. | Graph papers  Square board.  Geometrical instruments. | *KLB BK II*  *Pgs 286-9* |  |
| 5,6 | C.A.T.& MID-TERM BREAK | |  |  |  |  |

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|  | 8 | 1 | Product of positive scalar and a vector. | Obtain product of a vector and a positive scalar. | Illustrative examples;  Oral exercise | Graph papers  Square board.  Geometrical instruments. | *KLB BK II*  *Pgs 286-9* |  |
| 2 | Negative scalar multiplication of a vector. | Define a zero vector.  Multiply a vector by a negative scalar. | Q/A: Review equivalent vectors.  Illustrative examples.  Oral exercise.  Examples and exercise. | Graph papers  Square board.  Geometrical instruments. | *KLB BK II*  *Pgs 289-290* |  |
| 3 | Fractional scalars. | Multiply a vector by a positive or negative fraction. | Review multiplication of a vector by a positive scalar.  Deduce magnitude and direction of the new vector.  Work out examples. | Illustrative chart | *KLB BK II*  *Pg 290*  *Pg 291* |  |
| 4 | Column vectors. | Represent vectors as column vectors. | Examples.  Exercise | Square board  Square papers. | *KLB BK II*  *Pgs 290-1* |  |
| 5 | Sum of two column vectors. | Find the vector sum of two vectors in column form. | Q/A: review displacement;  Discuss vertical and horizontal displacement of a vector; leading to definition of a column vector;  Oral exercise;  Written exercise. | Square grid/ illustrative chart. | *KLB BK II*  *Pgs 296-8* |  |
| 6 | Sum of several column vectors. | Find vector sum of several vectors. | Add up vectors diagrammatically.  Examples.  Exercise. |  | *KLB BK II*  *Pgs 296-8* |  |

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|  | 9 | 1 | The position vector. | Define a position vector.  Adding two position vectors. | Problem solving. |  | *KLB BK II*  *Pgs 296-8* |  |
| 2 | Adding position vectors. | Add several position vectors. | Q/A: Review vector addition.  Exposition: Definition of position vector.  Examples;  Supervised practice. | Square board  Square papers. | *KLB BK II*  *Pgs 298-9* |  |
| 3 | Vector magnitude. | Find the magnitude of a vector with positive displacement. | Problem solving;  Exercise review. |  | *KLB BK II*  *Pgs 299-301* |  |
| 4 | Vector magnitude. | Find the magnitude of a vector with negative displacement. | Q/A: review horizontal and vertical displacement of a vector.  Deduce magnitude of a vector.  Examples, exercises. | Square board  Squared papers | *KLB BK II*  *Pgs 301-2* |  |
| 5 | Midpoint of a vector. | Find the co-ordinates of midpoint of a given vector. | Examples,  Written exercises;  Exercise review. | Square board  Squared papers. | *KLB BK II*  *Pgs 301-2* |  |
| 6 | Co-ordinates of points on a vector. | Find the co-ordinates of a point on a vector. | Examples and exercise.  Exercise review. | Square board  Squared papers. | *KLB BK II*  *Pgs 302-3* |  |

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|  | 10 | 1 | Translation matrix, T. | Define a translation matrix.  Identify translation matrices. | Guided discovery;  Oral exercise. |  |  |  |
| 2 | Translation of a point. | Illustrate a translation of a vector.  Obtain the image of a point under a translation vector T. | Q/A: dividing a vector in a given ratio  Worked examples.  Exercise. | Geo-board  Graph papers | *KLB BK II*  *Pgs 302-3* |  |
| 3 | Translation of a figure. | Obtain the image of a figure under a translation vector T. | Use a practical situation to introduce a translation.  Worked examples.  Exercise. | Geo-board  Graph papers | *KLB BK II*  *Pgs 304-6* |  |
| 4 | Translation | Obtain the object given the image and the translation matrix. | Worked examples.  Exercise.  Problem solving. | Geo-board  Graph papers | *KLB BK II*  *Pgs 304-6* |  |
| 5,6 | Problem solving on translations. | Solve problems involving translation matrices. |  |  |  |  |
| 11 | *MIXED EXERCISES* | | | | | |  |
| 12,  13 | *END OF TERM THREE EXAMINATIONS* | | | | | |  |