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| ***SCHEME OF WORK FORM THREE MATHEMATICS TERM ONE*** | | | | | | | |
| WK **NO.** |  | **TOPIC / SUBTOPIC** | **LESSON OBJECTIVES** | **TEACHING / LEARNING**  **ACTIVITIES** | **MATERIALS**  **/**  **RESOURCES** | ***REFERE-***  ***NCES*** | **REMARKS** |
| 1 | 1 | QUADRATIC EXPRESSIONS AND EQUATIONS  Perfect squares. | *By the end of the lesson, the learner should be able to:*  Factorise quadratic expressions.  Identify perfect squares. | Questioning to review quadratic expressions.  Oral exercise;  Written exercise. |  | *KLB BK III*  *Pg 1* |  |
| 2 | Completing the square.  (*last term not given)* | By the end of the lesson, the learner should be able to:  Make quadratic expressions perfect squares when last term is not given. | Guided discovery;  Supervised practice;  Written exercise. |  | *KLB BK III*  *Pgs 2 - 3* |  |
| 3 | Completing the square.  *(middle term not given)* | By the end of the lesson, the learner should be able to:  Make quadratic expressions perfect squares when middle term is not given. | Worked examples;  Supervised practice;  Written exercise.  Exercise review. |  | *KLB BK III*  *Pgs 3 - 4* |  |
| 4 | Quadratic equations.  *(1 as coefficient of x)* | By the end of the lesson, the learner should be able to:  Solve quadratic equations by completing the square. | Worked examples;  Supervised practice;  Written exercise;  Exercise review. | Calculators. | *KLB BK III*  *Pgs 5 - 6* |  |
| 5 | Quadratic equations.  *(coefficient greater than 1)* | By the end of the lesson, the learner should be able to:  Solve quadratic equations by completing the square. | Worked examples;  Supervised practice;  Written exercise;  Exercise review. | Calculators. | *KLB BK III*  *Pgs 3 - 4* |  |
| 6 | The quadratic formula. | By the end of the lesson, the learner should be able to:  Derive and recall the quadratic formula. | Review completing the square;  Guided derivation of formula. |  | *KLB BK III*  *Pgs 7 - 8* |  |
| 7 | The quadratic formula. | By the end of the lesson, the learner should be able to:  Use the quadratic formula to solve quadratic equations. | Questioning to identify coefficients;  Worked examples;  Supervised practice;  Written exercise;  Exercise review. |  | *KLB BK III*  *Pgs 7 - 8* |  |
| 2 | 1 | Formulating quadratic equations. | By the end of the lesson, the learner should be able to:  Formulate quadratic equations from given situations. | Guided discovery;  Worked examples. |  | *KLB BK III*  *Pgs 9-10* |  |
| 2 | Solutions of formulated quadratic equations. | By the end of the lesson, the learner should be able to:  Find solutions of formulated quadratic equations. | Supervised practice;  Written exercise;  Exercise review. |  | *KLB BK III*  *Pgs 10-12* |  |
| 3 | Tables of quadratic functions. | By the end of the lesson, the learner should be able to:  Fill in tables of quadratic functions. | Completing tables;  Oral exercises;  Written exercise. |  | *KLB BK III*  *Pgs 12-14* |  |
| 4,5 | Graphs of quadratic functions. | By the end of the lesson, the learner should be able to:  Draw graphs of quadratic functions. | Plotting graphs;  Supervised practice;  Written exercise. | Graph papers, geoboard. | *KLB BK III*  *Pgs 12-14* |  |
| 6,7 | Graphical solutions of quadratic equations. | By the end of the lesson, the learner should be able to:  Obtain solutions of quadratic equations from graphs. | Guided discovery;  Oral and written exercises. | Graph papers, geoboard. | *KLB BK III*  *Pgs 15-19* |  |
| 3 | 1,2 | Graphical solutions of simultaneous equations. | By the end of the lesson, the learner should be able to: Solve two simultaneous equations graphically. | Review equations of a line, a quadratic function;  Worked example;  Written exercise. | Graph papers, geoboard. | *KLB BK III*  *Pgs 20-21* |  |
| 3 | Further graphical solutions. | By the end of the lesson, the learner should be able to: Solve simultaneous equations graphically. | Guided discovery;  Worked examples;  Written exercises;  Exercise review,  Problem solving. | Graph papers, geoboard. | *KLB BK III*  *Pgs 21-23* |  |
|  | 4,5 | APPROXIMATIONS AND ERRORS  Basic calculator operations. | By the end of the lesson, the learner should be able to:  Use a calculator to perform basic operations. | Displaying figures and signs on a calculator;  Hands-on practice.  Oral exercise;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 24-28* |  |
| 6,7 | Roots and powers using a calculator. | By the end of the lesson, the learner should be able to:  Find roots and powers of numbers using a calculator. | Displaying figures and signs on a calculator;  Hands-on practice.  Oral exercise;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 26-28* |  |
| 4 | 1 | Approximation by rounding off numbers. | By the end of the lesson, the learner should be able to:  Round off numbers. | Oral and written exercises. |  | *KLB BK III*  *Pgs 29-31* |  |
| 2 | Approximation by truncating. | By the end of the lesson, the learner should be able to:  Truncate a figure to given number of dec. places. | Worked examples;  Oral and written exercises. |  | *KLB BK III*  *Pgs 29-31* |  |
| 3,4 | Accuracy and errors.  Absolute error. | By the end of the lesson, the learner should be able to:  Identify lower and upper limits of a measured value.  Find absolute error of a measured value. | Exposition of new terms;  Oral and written exercises. | Calculator. | *KLB BK III*  *Pgs 31-32* |  |
| 5,6 | Relative and percentage error. | By the end of the lesson, the learner should be able to:  Find relative and percentage errors of a measured value. | Exposition of new terms;  Guided discovery;  Oral and written exercises. | Calculator. | *KLB BK III*  *Pgs 32-33* |  |
| 7 | Round off error. | By the end of the lesson, the learner should be able to:  Find error introduced by rounding off a figure. | Q/A to review rounding off;  Oral and written exercises. | Calculator. | *KLB BK III*  *Pgs 34-35* |  |
| 5 | 1 | Truncation error. | By the end of the lesson, the learner should be able to:  Find error introduced by truncating a figure. | Worked examples;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 34-35* |  |
| 2 | Error propagated in a sum. | By the end of the lesson, the learner should be able to:  Find error introduced when two figures are added. | Guided discovery;  Worked examples;  Supervised practice.  Written exercise. | Calculator. | *KLB BK III*  *Pgs 35-36* |  |
| 3 | Error in a difference of two numbers. | By the end of the lesson, the learner should be able to:  Find error introduced when a figure is subtracted from another. | Guided discovery;  Worked examples;  Supervised practice.  Written exercise. | Calculator. | *KLB BK III*  *Pgs 35-36* |  |
| 4 | Error in a sum and a difference. | By the end of the lesson, the learner should be able to:  Find error introduced by both addition and subtraction. | Guided discovery;  Worked examples;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 38-39* |  |
| 5 | Error in a product. | By the end of the lesson, the learner should be able to:  Find error introduced when two figures are multiplied. | Guided discovery;  Worked examples;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 36-37* |  |
| 6 | Error propagated by division. | By the end of the lesson, the learner should be able to:  . | Worked examples.  Group activities.  Exercise review. | Calculator. | *KLB BK III*  *Pgs 37-38* |  |
| 7 | Error propagated by division and multiplication. | By the end of the lesson, the learner should be able to:  Find error propagated by division and multiplication. | Probing questions;  Guided discovery;  Worked examples;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 38-40* |  |
| 6 | 1,2 | Other propagated errors. | By the end of the lesson, the learner should be able to:  Evaluate other propagation errors. | Drawing;  Oral exercise;  Measure +ve and –ve angles. | Calculator. | *KLB BK III*  *Pgs 38-40* |  |
| 2,3 | **TRIGONOMETRY**  The unit circle. | By the end of the lesson, the learner should be able to:  Draw the unit circle.  Identify quadrants of the unit circle. | Guided discovery;  Supervised practice;  Exercises. | Geometrical set, geeoboard. | *KLB BK III*  *Pgs 41-44* |  |
| 4,5 | Trigonometric ratios of acute angles. | By the end of the lesson, the learner should be able to:  Read off sin, cos and tan of acute angles from the unit circle. | Guided discovery;  Oral and written exercises. | Geometrical set, geeoboard. | *KLB BK III*  *Pgs 34 - 37* |  |
| 6,7 | Trigonometric ratios of angles greater than 900. | By the end of the lesson, the learner should be able to:  Read off sin, cos and tan of angles greater than 900 from the unit circle. | Guided discovery;  Oral and written exercises. | Geometrical set, geeoboard. | *KLB BK III*  *Pgs 44-48* |  |
| 7 | 1 | Trigonometric ratios of negative angles. | By the end of the lesson, the learner should be able to:  Read off sin, cos and tan of negative angles from the unit circle. | Guided discovery;  Oral and written exercises. | Geoboard;  Graph books. | *KLB BK III*  *Pgs 48-49* |  |
| 2 | Trigonometric ratios of angles greater than 3600. | By the end of the lesson, the learner should be able to:  Read off sin, cos and tan of angles greater than 3600 from the unit circle. | Guided discovery;  Supervised practice;  Mixed exercises;  Exercise review. | Geoboard;  Graph books. | *KLB BK III*  *Pgs 49-51* |  |
| 3,4 | Trigonometric ratios using mathematical tables. | By the end of the lesson, the learner should be able to:  Read off sin, cos and tan of angles from mathematical tables. | Guided discovery;  Supervised practice;  Mixed exercises;  Exercise review. | Mathematical tables. | *KLB BK III*  *Pgs 51-54* |  |
|  | 5-7 | C.A.T. & MID TERM BREAK | |  |  |  |  |
| 8 | 1,2 | Solution of trig. equations. | By the end of the lesson, the learner should be able to:  Solve trigonometric equations. | Practical activities;  Supervised practice;  Written exercise. | Mathematical tables. | *KLB BK III*  *Pgs 55-56* |  |
| 3,4 | Angle whose trig. ratio is given. | By the end of the lesson, the learner should be able to:  Find an angle whose trig. ratio is given. | Guided discovery;  Mixed exercises;  Exercise review. | Mathematical tables. | *KLB BK III*  *Pgs 51-54* |  |
| 5 | Trigonometric ratios using a calculator. | By the end of the lesson, the learner should be able to:  Find sin, cos and tan of angles using a calculator. | Oral exercise;  Supervised practice;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 48-60* |  |
| 6,7 | Trigonometric ratios using a calculator. | By the end of the lesson, the learner should be able to:  Find sin, cos and tan of angles using a calculator. |  |  |  |  |
| 9 | 1,2 | Radian measure. | By the end of the lesson, the learner should be able to:  Define a radian.  Express degrees in radians. | Exposition of new concepts;  Completing tables.  Written exercise. | Calculator. | *KLB BK III*  *Pgs 58-61* |  |
| 3,4 | Trigonometric ratios of angles in radians. | Find sin, cos and tan of angles in radians. | Exposition of new concepts;  Completing tables.  Written exercise. | Calculator. | *KLB BK III*  *Pgs 58-61* |  |
| 5,6 | Simple trigonometric graphs. | By the end of the lesson, the learner should be able to:  Draw graphs of simple trigonometric expressions. | Completing tables of values;  Supervised practice;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 62-65* |  |
|  | 7 | Other trigonometric graphs. | By the end of the lesson, the learner should be able to: Draw graphs of trigonometric expressions on same axes. | Completing tables of values;  Supervised practice;  Written exercise. | Calculator. | *KLB BK III*  *Pgs 61 - 63* |  |
| 10 | 1 | The sine rule. | By the end of the lesson, the learner should be able to:  Recall the sine rule. | Exposition leading to discovery. |  | *KLB BK III*  *Pgs 65-68* |  |
| 2,3 | Application of the sine rule. | By the end of the lesson, the learner should be able to:  Use the sine rule to solve triangles. | Worked examples;  Problem solving;  Exercise review. | Calculator. | *KLB BK III*  *Pgs 68-71* |  |
| 4 | The cosine rule. | By the end of the lesson, the learner should be able to:  Recall the cosine rule. | Exposition leading to discovery. |  | *KLB BK III*  *Pgs 71-72* |  |
| 5,6 | Application of the cosine rule. | By the end of the lesson, the learner should be able to:  Use the cosine rule to solve triangles. | Worked examples;  Problem solving;  Exercise review. | Calculator. | *KLB BK III*  *Pgs 73-75* |  |
| 7 | Application of both sine and cosine rules. | By the end of the lesson, the learner should be able to:  Solve triangles using both sine and cosine rules. | Worked examples;  Problem solving;  Exercise review. |  | *KLB BK III*  *Pgs 76-77* |  |

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| 11 | 1 | **SURDS**  Irrational numbers. | By the end of the lesson, the learner should be able to:  Identify rational and irrational numbers.  Define a surd. | Probing questions;  Exposition. |  | *KLB BK III*  *78-79* |  |
| 2,3 | Simplification of surds. | By the end of the lesson, the learner should be able to:  Identify order of surds.  Simplify surds. | Oral exercise;  Written exercise. |  | *KLB BK III*  *Pgs 79-80* |  |
| 4,5 | Addition and subtraction of surds. | By the end of the lesson, the learner should be able to:  Add and subtract surds. | Q/A to review order of surds;  Worked examples;  Oral exercise;  Written exercise. |  | *KLB BK III*  *Pgs 88 - 96* |  |
| 6,7 | Multiplication of surds. | By the end of the lesson, the learner should be able to:  Obtain product of surds. | Worked examples;  Oral exercise;  Written exercise. |  | *KLB BK III*  *Pgs 81-84* |  |
| 12,  13 |  | *END OF TERM ONE EXAM* | | | | |  |

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| ***SCHEME OF WORK FORM THREE MATHEMATICS TERM TWO*** | | | | | | | | | | |
| WK **NO.** |  | **TOPIC / SUBTOPIC** | **LESSON OBJECTIVES** | **TEACHING / LEARNING**  **ACTIVITIES** | **MATERIALS**  **/**  **RESOURCES** | | | ***REFERE-***  ***NCES*** | **REMARKS** | |
| 1 | 1,2 | Division of surds. | By the end of the lesson, the learner should be able to:  Obtain quotient of two surds. | Worked examples;  Oral exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 81-84* |  |
| 3 | Rationalizing a fraction having a surd. | By the end of the lesson, the learner should be able to:  Rationalize denominator of a fraction. | Worked examples;  Supervised practice;  Written exercise. |  | | | *KLB BK III*  *Pgs 85-86* |  |
| 4,5 | Rationalizing using a conjugate. | By the end of the lesson, the learner should be able to:  Rationalize denominator of a fraction using a conjugate. | Worked examples;  Supervised practice;  Written exercise. |  | | | *KLB BK III*  *Pgs 86-87* |  |
| 6,7 | Rationalizing and simplification.  (problem solving) | By the end of the lesson, the learner should be able to:  Rationalize and simplify expressions. | Review trigonometric ratios expressed in surd form;  Problem solving,  Review mixed exercise. |  | | | *KLB BK III*  *Pgs 87-88* |  |
| 2 | 1,2 | **FURTHER LOGS**  Laws of logs. | By the end of the lesson, the learner should be able to:  Recall the laws of logs. | Review laws of indices;  Probing questions leading to derivation of laws of logs. |  | | | *KLB BK III*  *Pgs 89-91* |  |
| 3,4 | Application of laws of logs. | By the end of the lesson, the learner should be able to:  Apply the laws of logs in evaluating expressions. | Review laws of logs;  Worked examples;  Supervised practice;  Exercises.  Review of exercises. |  | | | *KLB BK III*  *Pgs 92-93* |  |
|  | 5,6 | Logarithmic equations and expressions. | By the end of the lesson, the learner should be able to:  Evaluate logarithmic expressions.  Solve logarithmic equations. | Review laws of logs;  Worked examples;  Supervised practice;  Exercises. | Calculator. | | | *KLB BK III*  *Pgs 93-95* |  |
| 7 | Further logarithmic equations and expressions. | By the end of the lesson, the learner should be able to:  Solve further logarithmic equations | Worked examples;  Supervised practice;  Mixed exercises.  Exercise review. | Calculator. | | | *KLB BK III*  *Pgs 96-97* |  |
| 3 | 1 | **COMMERCIAL ARITHMETIC (II**)  Simple interest. | By the end of the lesson, the learner should be able to:  Find simple interest earned. | Q/A to review simple interest formula;  Worked examples;  Written exercise. | Calculator. | | | *KLB BK III*  *Pgs 98-99* |  |
| 2,3 | Rate of interest, principal and amount. | By the end of the lesson, the learner should be able to:  Find rate of interest, principal and amount. | Worked examples;  Written exercise. | Calculator. | | | *KLB BK III*  *Pgs 100-1* |  |
| 4,5 | Compound interest formula. | By the end of the lesson, the learner should be able to:  Recall the compound interest formula. | Exposition leading to discovery of formula; | Calculator. | | | *KLB BK III*  *Pgs 102-3* |  |
| 6,7 | Applying compound interest formula. | By the end of the lesson, the learner should be able to:  Apply compound interest formula. | Worked examples;  Supervised practice;  Written exercise;  Exercise review. | Calculator. | | | *KLB BK III*  *Pgs 105-7* |  |
| 4 | 1 | Appreciation. | By the end of the lesson, the learner should be able to:  Find value of an item after appreciation. | Q/A to review compound interest formula.  Worked examples;  Written exercise;  Exercise review. | Calculator. | | | *KLB BK III*  *Pgs 108-110* |  |
| 4 | 2 | Depreciation. | By the end of the lesson, the learner should be able to:  Find value of an item after depreciation. | Q/A to review compound interest formula.  Worked examples;  Written exercise;  Exercise review. | Calculator. | | | *KLB BK III*  *Pgs 108-110* |  |
| 3,4 | Hire purchase. | By the end of the lesson, the learner should be able to:  Find cost of an item when bought on hire purchase. | Worked examples;  Written exercise;  Exercise review. | Calculator. | | | *KLB BK III*  *Pgs 110-112* |  |
| 5 | Taxable income. | By the end of the lesson, the learner should be able to:  Define income tax.  Define taxable income, rate of taxation and relief.  Find taxable income. | Probing questions;  Exposition of new terms  Oral exercise;  Simple exercise. | Calculator, income tax tables. | | | *KLB BK III*  *Pgs 112-4* |  |
| 6,7 | Income tax and PAYE. | By the end of the lesson, the learner should be able to:  Determine PAYE remitted by a tax payer. | Worked examples;  Exercises. | Mathematical tables. | | | *KLB BK III*  *Pgs 115-6* |  |
| 5 | 1,2 | PAYE under special conditions. | By the end of the lesson, the learner should be able to:  Calculate income tax paid under special conditions. | Exposition of special conditions, e.g. free housing, insurance policies, special benefits, share dividends, etc.  Worked examples;  Exercises. |  | | | *KLB BK III*  *Pgs 116-8* |  |
| 3,4 | Income tax  (mixed exercise) | By the end of the lesson, the learner should be able to:  Work out sums involving income tax | Mixed exercise.  Problem solving;  Reversing income tax computation to find taxable income. | Past exam papers. | | | *KLB BK III*  *Pgs 116-8* |  |
| 5 | 5,6 | **CIRCLES- CHORD AND TANGENTS**  Length of an arc. | By the end of the lesson, the learner should be able to:  Find the length of an arc.  Find angle subtended by an arc. | Q/A to review area of a circle;  Worked examples;  Written exercise. | Calculator. | | | *KLB BK III*  *Pgs 124-6* |  |
| 7 | Perpendicular bisector of a chord. | By the end of the lesson, the learner should be able to:  Construct a perpendicular bisector of a chord. | Geometrical construction;  Problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 127-8* |  |
| 6 | 1,2 | Parallel chords. | By the end of the lesson, the learner should be able to:  Construct parallel chords.  Solve problems involving parallel chords. | Geometrical construction;  Problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 129-131* |  |
| 3,4 | Equal chords. | By the end of the lesson, the learner should be able to:  Identify properties of equal chords. | Geometrical construction;  Guided discovery;  Problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 131-2* |  |
| 5 | Internally intersecting chords. | By the end of the lesson, the learner should be able to:  Identify internally intersecting chords.  Work out sums involving internally intersecting chords. | Geometrical construction;  Worked examples;  Written exercise. | Geometrical set. | | | *KLB BK III*  *Pgs 132-4* |  |
| 6,7 | Externally intersecting chords. | By the end of the lesson, the learner should be able to:  Identify externally intersecting chords.  Work out sums involving externally intersecting chords. | Geometrical construction;  Worked examples;  Written exercise;  Mixed exercise  Exercise review. | Geometrical set. | | | *KLB BK III*  *Pgs 134-9* |  |
| 7 | 1 | Tangent to circle. | By the end of the lesson, the learner should be able to:  Identify a tangent and a secant.  Construct a tangent to a circle. | Geometrical construction;  Making deductions;  Simple problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 139-142* |  |
| 2,3 | Tangents from a common point. | By the end of the lesson, the learner should be able to:  Construct tangents to a circle. | Geometrical construction;  Making deductions;  Simple problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 142-8* |  |
| 4-7 | C.A.T & MID TERM BREAK | |  |  | | |  |  |
| 8 | 1,2 | Tangents to two circles. | By the end of the lesson, the learner should be able to:  Construct tangents to two circles. | Geometrical construction;  Making deductions;  Simple problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 148-151* |  |
| 3,4 | Internally touching circles. | By the end of the lesson, the learner should be able to:  Work out calculations involving internally touching circles. | Geometrical construction;  Making deductions;  Problem solving. | Geometrical set. | | | *KLB BK III*  *Pgs 151-157* |  |
| 5,6 | Externally touching circles. | By the end of the lesson, the learner should be able to:  Work out calculations involving externally touching circles. | Geometrical construction;  Making deductions;  Problem solving. | Geometrical set. | | | *KLB BK III*  *Pg151-7.* |  |
| 7 | Angle in alternate segment. | By the end of the lesson, the learner should be able to:  Identify the angle in alternate segment of a circle.  Find unknown angles. | Geometrical construction;  Making deductions;  Oral exercise;  Written exercise;  Exercise review. | Geometrical set. | | | *KLB BK III*  *Pgs 157-164* |  |
| 9 | 1,2 | Inscribed circle. | By the end of the lesson, the learner should be able to:  Construct an inscribed circle. | Guided geometrical construction;  Measuring radius, altitude, etc. | Geometrical set. | | | *KLB BK III*  *Pgs 164-5* |  |
| 3 | Circumscribed circle. | By the end of the lesson, the learner should be able to:  Construct an circumscribed circle. | Guided geometrical construction;  Measuring radius, altitude, etc. | Geometrical set. | | | *KLB BK III*  *Pgs 165-7* |  |
| 4 | Escribed circle. | By the end of the lesson, the learner should be able to:  Construct an escribed circle. | Guided geometrical construction;  Making inferences. | Geometrical set. | | | *KLB BK III*  *Pgs 165-7* |  |
| 5 | MATRICES  Order of a matrix. | By the end of the lesson, the learner should be able to:  State order of a matrix.  Identify elements of a matrix. | Guided discovery of what a matrix is.  Probing questions. | Chart showing tabular information. | | | *KLB BK III*  *Pgs 168-170* |  |
| 6,7 | Addition and subtraction of matrices. | By the end of the lesson, the learner should be able to:  Work out addition and subtraction of matrices. | Worked examples;  Oral exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 170-4* |  |
| 10 | 1,2 | Multiplication of matrices. | By the end of the lesson, the learner should be able to:  Work out multiplication of two matrices. | Worked examples;  Supervised exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 177-182* |  |
| 3,4 | Multiplication of matrices.  (contd) | By the end of the lesson, the learner should be able to:  Work out multiplication of two matrices. | Worked examples;  Supervised exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 177-182* |  |
| 10 | 5 | Determinant of a matrix. | By the end of the lesson, the learner should be able to:  Find determinant of a matrix. | Exposition of identity matrix, determinant of a matrix.  Simple problem solving. |  | | | *KLB BK III*  *Pgs 182-3* |  |
| 6,7 | Inverse of a matrix. | By the end of the lesson, the learner should be able to:  Find the inverse of a matrix. | Guided discovery that  AA -1 = I;  Exposition and explanations;  Worked examples;  Written exercise. | |  | | *KLB BK III*  *Pgs 183-7* |  |
| 11 | 1,2 | Solutions of simultaneous equations using matrices. | By the end of the lesson, the learner should be able to:  Solve simultaneous equations using matrix method. | Worked examples;  Supervised practice;  Written exercises; | |  | | *KLB BK III*  *Pgs 188-90* |  |
| 3,4 | Solutions of simultaneous equations using matrices. | By the end of the lesson, the learner should be able to:  Solve simultaneous equations using matrix method. | Exercise review;  Problem solving. | |  | | *KLB BK III*  *Pgs 188-90* |  |
| 5 | FORMULAE AND VARIATION  Subject of a formula. | By the end of the lesson, the learner should be able to:  Change the subject of a simple formula. | Q/A- examples of formulae;  Worked examples; Supervised practice;  Written exercise. | |  | | *KLB BK III*  *Pgs 191-4* |  |
| 6,7 | Subject of a formula. | By the end of the lesson, the learner should be able to:  Change the subject of a complicated formula. | Examples using other formulae,  Supervised practice;  Written exercise. | | |  | *KLB BK III*  *Pgs 191-4* |  |
| 12,  13 | *END OF TERM EXAMINATIONS* | | | | | | | |  |

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| ***SCHEME OF WORK FORM THREE MATHEMATICS TERM THREE YEAR*** | | | | | | | | | | | | | |
| WK **NO.** |  | | **TOPIC / SUBTOPIC** | | **LESSON OBJECTIVES** | **TEACHING / LEARNING**  **ACTIVITIES** | **MATERIALS**  **/**  **RESOURCES** | | | ***REFERE-***  ***NCES*** | **REMARKS** | | |
| 1 | 1 | | Direct variation. | | By the end of the lesson, the learner should be able to:  Evaluate expressions involving direct variation. | Probing questions;  Worked examples;  Oral exercise;  Written exercise. | |  | | *KLB BK III*  *Pgs 194-7* |  |
| 2 | | Inverse variation. | | By the end of the lesson, the learner should be able to:  Evaluate expressions involving inverse variation. | Probing questions;  Drawing a graph showing inverse variation;  Worked examples;  Oral exercise;  Written exercise. | |  | | *KLB BK III*  *Pgs 197-201* |  |
| 3,4 | | Partial variation. | | By the end of the lesson, the learner should be able to:  Evaluate given expressions involving partial variation. | Exposition;  Worked examples;  Oral exercise;  Written exercise. | |  | | *KLB BK III*  *Pgs 201-4* |  |
| 5 | | Formulating expressions on partial variation. | | By the end of the lesson, the learner should be able to:  Formulate expressions involving partial variation.  Evaluate formulated expressions involving partial variation. | Exposition;  Worked examples;  Oral exercise;  Written exercise. | |  | | *KLB BK III*  *Pgs 201-4* |  |
| 6,7 | | Joint variation. | | By the end of the lesson, the learner should be able to:  Evaluate given expressions involving joint variation. | Review direct and inverse variation;  Worked examples;  Written exercise. |  | | | *KLB BK III*  *Pgs 204-5* |  |
| 2 | 1 | | Further joint variation. | | By the end of the lesson, the learner should be able to:  Evaluate expressions involving joint variation and changing variables. | Worked examples;  Written exercise;  Exercise review. |  | | | *KLB BK III*  *Pgs 205-6* |  |
|  | 2 | | SEQUENCES AND SERIES  Sequences. | | By the end of the lesson, the learner should be able to:  Determine the nth term in a sequence.  Deduce the rule used in a sequence. | Guided discovery;  Oral exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 207-8* |  |
| 3,4 | | Arithmetic sequence. | | By the end of the lesson, the learner should be able to:  Identify an arithmetic sequence.  Find unknown terms in an arithmetic sequence. | Guided discovery;  Oral exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 209-11* |  |
| 5 | | Geometric sequence. | | By the end of the lesson, the learner should be able to:  Identify a geometric sequence.  Find unknown terms in a geometric sequence. | Guided discovery;  Oral exercise;  Written exercise. |  | | | *KLB BK III*  *Pgs 211-4* |  |
| 6,7 | Arithmetic progression. | | By the end of the lesson, the learner should be able to:  Find number of terms in an A.P.  Find sum of given terms of an A.P. | | Exposition;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 214-6* | |  |
| 3 | 1 | Geometric progression. | | By the end of the lesson, the learner should be able to:  Find number of terms in a G.P.  Find sum of given terms of a G.P. | | Guided discovery;  Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 216-220* | |  |
| 2,3 | Arithmetic and geometric progressions. | | By the end of the lesson, the learner should be able to:  Work out expressions involving both arithmetic and geometric progressions. | | Worked examples;  Supervised practice;  Mixed exercise. | Past exam papers. | | *KLB BK III*  *Pgs 216-220* | |  |
| 3 | 4 | VECTORS (II)  Co-ordinates of a point in three dimensions. | | By the end of the lesson, the learner should be able to:  State co-ordinates of a point in three dimensions. | | Q/A to review co-ordinates in two dimensions.  Exposition of Z-axis;  Oral exercise; | *Wire mesh in three dimensions.* | | *KLB BK III*  *Pgs 221-2* | |  |
| 5,6 | Column vectors. | | By the end of the lesson, the learner should be able to:  Find a column vector given two points. | | Q/A to review column vector and position vectors in two dimensions;  Worked examples;  Written exercise. |  | | *KLB BK III*  *Pgs 223-6* | |  |
| 7 | Column vectors in terms of unit vectors. | | By the end of the lesson, the learner should be able to:  Find a column vectors in terms of unit vectors. | | Q/A to review unit vectors in two dimensions;  Worked examples;  Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 226-8* | |  |
| 4 | 1,2 | Magnitude of a vector | | By the end of the lesson, the learner should be able to:  Find magnitude of a vector in three dimensions. | | Q/A to review magnitude of a vector in two dimensions;  Worked examples;  Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 229-230* | |  |
| 3,4 | Parallel vectors. | | By the end of the lesson, the learner should be able to:  Identify parallel vectors. | | Worked examples;  Oral exercise;  Written exercise. | Geoboard. | | *KLB BK III*  *Pgs 231-2* | |  |
| 4 | 5,6 | Collinear points. | | By the end of the lesson, the learner should be able to:  Show that three points are collinear. | | Worked examples;  Oral exercise;  Written exercise. | Geoboard. | | *KLB BK III*  *Pgs 231-2* | |  |
| 7 | Parallel vectors and collinear points. | | By the end of the lesson, the learner should be able to:  Evaluate parallel vectors and collinear points. | | Worked examples;  Oral exercise;  Written exercise. | Past exam papers. | | *KLB BK III*  *Pgs 233-7* | |  |
| 5 | 1,2 | Internal division of a line. | | By the end of the lesson, the learner should be able to:  Determine the ratio a point divides a segmented line. | | Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 237-8* | |  |
| 3,4 | External division of a line. | | By the end of the lesson, the learner should be able to:  Determine the ratio an external point divides a segmented line. | | Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 238-9* | |  |
|  | 5,6 | The ratio theorem. | | By the end of the lesson, the learner should be able to:  Apply the ratio theorem. | | Guided discovery;  Worked examples. |  | | *KLB BK III*  *Pgs 240-8* | |  | |
| 7 | Using the ratio theorem. | | By the end of the lesson, the learner should be able to:  Apply the ratio theorem. | | Guided discovery;  Worked examples. |  | | *KLB BK III*  *Pgs 240-8* | |  | |
| 6 | 1 | Vectors and geometry. | | By the end of the lesson, the learner should be able to:  Apply vectors in geometry. | | Worked examples.  Oral exercise;  Written exercise;  Exercise review. |  | | *KLB BK III*  *Pgs 249-250* | |  | |
|  | 2 | BINOMIAL EXPANSIONS  Pascal’s triangle. | | By the end of the lesson, the learner should be able to:  Use Pascal’s triangle to determine coefficients of terms of a binomial expressions. | | Q/A to review expansion of quadratic expressions;  Exposition of new concepts | Mathematical tables. | | *KLB BK III*  *Pgs 256-8* | |  | |
| 3 | Binomial expressions. | | By the end of the lesson, the learner should be able to:  Expand binomial expressions. | | Worked examples;  Supervised practice;  Written exercise. | Mathematical tables. | | *KLB BK III*  *Pgs 256-8* | |  | |
| 4 | Further binomial expressions. | | By the end of the lesson, the learner should be able to:  Expand further binomial expressions. | | Worked examples;  Supervised practice;  Written exercise. | Mathematical tables. | | *KLB BK III*  *Pgs 258-9* | |  | |
| 5 | Applications of binomial expressions. | | By the end of the lesson, the learner should be able to:  Evaluate binomial expressions. | | Worked examples;  Supervised practice;  Compare results with a calculator;  Written exercise. | Mathematical tables, calculator. | | *KLB BK III*  *Pgs 260-1* | |  | |
| 6,7 | Further applications of binomial expressions. | | By the end of the lesson, the learner should be able to:  Evaluate further binomial expressions. | | Worked examples;  Supervised practice;  Compare results with a calculator;  Written exercise;  Exercise review. | Mathematical tables, calculator. | | *KLB BK III*  *Pgs 260-1* | |  | |
| 7 | 1 | PROBABILITY  Experimental probability. | | By the end of the lesson, the learner should be able to:  Define probability.  Find experimental probability. | | Practical activities;  Guided discovery;  Simple problem solving. |  | | *KLB BK III*  *Pgs 262-6* | |  | |
|  | 2 | Probability sample space. | | By the end of the lesson, the learner should be able to:  Define a probability sample space.  Determine probability sample space. | | Exposition leading to discovery of sample space;  Simple problem solving. |  | | *KLB BK III*  *Pgs 266-270* | |  | |
| 3 | Theoretical probability | | By the end of the lesson, the learner should be able to:  Find theoretical probability from given situations. | | Worked examples;  Written exercise. |  | | *KLB BK III*  *Pgs 270-2* | |  | |
| 4,5 | Mutually exclusive events. | | By the end of the lesson, the learner should be able to:  Identify mutually exclusive events.  Determine probability of mutually exclusive events. | | Exposition;  Worked examples;  Written exercise. |  | | *KLB BK III*  *Pgs 272-4* | |  | |
| 6,7 | C.A.T & MID TERM BREAK | | | |  |  | | *KLB BK III*  *Pgs 274-6* | |  | |
| 8 | 1 | Independent events. | | By the end of the lesson, the learner should be able to:  Identify independent events.  Determine probability of independent events. | | Exposition;  Worked examples;  Written exercise. |  | |  | |  | |
| 2 | Independent and mutually exclusive events. | | By the end of the lesson, the learner should be able to:  Determine probability of both independent and mutually exclusive events. | | Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 277-282* | |  | |
| 3 | Further independent and mutually exclusive events. | | By the end of the lesson, the learner should be able to:  Determine probability of both independent and mutually exclusive events. | | Problem solving;  Exercise review. |  | | *KLB BK III*  *Pgs 277-282* | |  | |
|  | 4 | Tree diagrams. | | By the end of the lesson, the learner should be able to:  Illustrate probability spaces with tree diagrams. | | Guided discovery;  Completing tree diagrams;  Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 282-7* | |  | |
| 5,6 | Probability using tree diagrams. | | By the end of the lesson, the learner should be able to:  Use tree diagrams to work out probability. | | Guided discovery;  Worked examples;  Supervised practice;  Written exercise;  Exercise review. |  | | *KLB BK III*  *Pgs 282-7* | |  | |
| 7 | Further tree diagrams. | | By the end of the lesson, the learner should be able to:  Use tree diagrams to work out probability. | | Guided discovery;  Worked examples;  Supervised practice;  Written exercise;  Exercise review. |  | | *KLB BK III*  *Pgs 282-7* | |  | |
| 9 | 1 | COMPOUND PROPORTION AND RATE OF WORK  Proportion. | | By the end of the lesson, the learner should be able to:  Identify values that make continued proportions.  Evaluate proportional expressions. | | Probing questions;  Simple problem solving;  Oral exercise;  Written exercise. |  | | *KLB BK III*  *Pgs 288-291* | |  | |
| 2 | Proportional parts. | | By the end of the lesson, the learner should be able to:  Divide a figure in given proportional parts. | | Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 291-3* | |  | |
| 3 | Rates of work. | | By the end of the lesson, the learner should be able to:  Evaluate sums on rates of work. | | Worked examples;  Supervised practice;  Written exercise;  Problem solving. |  | | *KLB BK III*  *Pgs 294-8* | |  | |
| 4 | Mixtures. | | By the end of the lesson, the learner should be able to:  Work out numerical questions involving mixtures. | | Worked examples;  Supervised practice;  Written exercise;  Problem solving. |  | | *KLB BK III*  *Pgs 295-8* | |  | |
|  | 5 | Rates of work and mixtures. | | By the end of the lesson, the learner should be able to:  Work out numerical questions involving rates of work and mixtures. | | Problem solving;  Exercise review. |  | | *KLB BK III*  *Pgs 294-8* | |  | |
| 6 | GRAPHICAL METHODS  Tables of functions. | | By the end of the lesson, the learner should be able to:  Complete tables of given functions. | | Completing tables. | Calculator. | | *KLB BK III*  *Pgs 299-300* | |  | |
| 7 | Graphs of functions. | | By the end of the lesson, the learner should be able to:  Draw graphs of given functions. | | Completing tables;  Drawing graphs;  Reading off values from the graphs. | Calculator,  Graph books. | | *KLB BK III*  *Pgs 300-1* | |  | |
| 10 | 1 | Cubic expressions. | | By the end of the lesson, the learner should be able to:  Identify cubic expressions.  Draw graphs for cubic expressions. | | Completing tables;  Drawing graphs;  Reading off values from the graphs. | Calculator,  Graph books. | | *KLB BK III*  *Pgs 300-1* | |  | |
| 2 | Solutions of cubic equations. | | By the end of the lesson, the learner should be able to:  Use graphs to find solutions of cubic equations. | | Completing tables;  Drawing graphs;  Reading off values from the graphs;  Solving equations. | Calculator,  Graph books. | | *KLB BK III*  *Pgs 301-4* | |  | |
| 3 | Average rate of change. | | By the end of the lesson, the learner should be able to:  Determine average rate of change of a variable with another. | | Interpreting graphs;  Drawing graphs;  Worked examples;  Written exercise. | Graph books. | | *KLB BK III*  *Pgs 304-9* | |  | |
| 4 | Instantaneous rate of change. | | By the end of the lesson, the learner should be able to:  Determine rate of change of a variable at an instant. | | Interpreting graphs;  Worked examples;  Written exercise. | Graph books. | | *KLB BK III*  *Pgs 309-15* | |  | |
| 10 | 5 | Empirical graphs. | | By the end of the lesson, the learner should be able to:  Draw graphs from empirical situations. | | Drawing graphs;  Reading off values from the graphs. | Graph books. | | *KLB BK III*  *Pgs 315-8* | |  | |
| 6,7 | Changing non-linear laws to linear form. | | By the end of the lesson, the learner should be able to:  Change non-linear laws to linear form.  Complete tables for linear forms. | | Reduction of laws;  Completing tables;  Supervised practice. | Graph books. | | *KLB BK III*  *Pgs 318-25* | |  | |
| 11 | 1 | Non-linear laws to linear form. | | By the end of the lesson, the learner should be able to:  Change non-linear laws to linear form.  Draw suitable graphs from the laws. | | Completing tables;  Drawing graphs;  Supervised practice;  Written exercise. | Graph books, calculator. | | *KLB BK III*  *Pgs 318-25* | |  | |
| 2 | Equation of a circle, centre origin. | | By the end of the lesson, the learner should be able to:  Find equation of a circle with centre as origin. | | Guided discovery;  Worked examples;  written exercise. |  | | *KLB BK III*  *Pgs 325-6* | |  | |
| 3 | Equation of a circle,  centre (a, b) | | By the end of the lesson, the learner should be able to:  Find equation of a circle given centre (a,b) | | Guided discovery;  Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 326-7* | |  | |
| 4,5 | Equation of a circle given its diameter. | | By the end of the lesson, the learner should be able to:  Find equation of a circle given its diameter. | | Review midpoint of a vector;  Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 326-7* | |  | |
| 6,7 | Centre and radius of a circle. | | By the end of the lesson, the learner should be able to:  Determine centre and radius of a circle from an equation. | | Review completing the square;  Worked examples;  Supervised practice;  Written exercise. |  | | *KLB BK III*  *Pgs 328-9* | |  | |
|  | *END OF YEAR EXAMS* | | | | | | | | | | |  | |