**FORM 3 - TERM 1 - 2025**

**MATHEMATICS**

**SCHEMES OF WORK**

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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* | | | | |  |