**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 EQUATIONSPerfect 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 ERRORSBasic 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* |  |