**MATHEMATICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM I**

**REFERENCES:**

1. Advancing in Mathematics BK 4 By Longhorn Kenya Publishers
2. Secondary Mathematics BK 4 By KLB
3. Patel Mathematics BK 4
4. Discovering Secondary Mathematics BK 4 By OVP
5. Form Four Maths By Malkiat Singh
6. Test it and Fix Maths
7. KIE Mathematics forms 2 and 3
8. Golden Tips Mathematics
9. Gateway KCSE Revision Mathematics
10. Solving Problems VOL I and II By Mutuuri

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| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
|  |  | **SCHOOL OPENING** | | | | |  |
| 1 | 1 | Matrices and  Transformation  Transformation on a  Cartesian plane | **By the end of the lesson, the learner**  **should be able to:-**  Relate image and objects under a given  transformation on the Cartesian plane | Drawing objects and  their images on  Cartesian plane  Practice Ex 1.1 P5 | Square boards  Peg boards and strings  Rubber band | - K.M, Advancing in  Math F4 Pg 1-3  - KLB Pg 1-6  - Patel Pg 7  - Malkiat Pg 1 |  |
|  | 2 | Matrices and  Transformation  Identification of  transformation matrix | **By the end of the lesson, the learner**  **should be able to:-**  Determine the matrix of a  transformation | Practice exercise  KLB EX 1.2 and 1.3 | Square boards  Peg boards and strings  Rubber band | - K.M, Advancing in  Math F4 Pg 3-9  - KLB Pg 6-16  - Patel  - Malkiat Pg 3 |  |
|  | 3&4 | Matrices and  Transformation  Successive  Transformation | **By the end of the lesson, the learner**  **should be able to:-**  Perform successive transformation | Drawing objects and its  successive images  KLB Ex 1.4 | Square boards  Peg boards and strings  Rubber band | - K.M, Advancing in  Math F4 Pg 15-17  - KLB Pg 16-24  - Patel Pg 18  - Malkiat Pg 9 |  |
|  | 5 | Matrices and  Transformation  Single matrix of  transformation for  successive transformation | **By the end of the lesson, the learner**  **should be able to:-**  Determine and identify a single matrix  for successive transformation | Drawing objects and its  successive images  KLB Ex 1.4 | Square boards  Peg boards and strings  Rubber band | - K.M, Advancing in  Math F4 Pg 15-17  - KLB Pg 21  - Patel Pg 18  - Malkiat Pg 11 |  |
|  | 6 | Matrices and  Transformation  Relate Identity Matrix  and Transformation | **By the end of the lesson, the learner**  **should be able to:-**  Relate identity matrix and  transformation | Practice exercise Ex 1.4  KLB BK 4 | Calculators | - K.M, Advancing in  Math F4 Pg 13-14  - KLB Pg 22-24  - Patel Pg 26  - Malkiat Pg 7 |  |
|  | 7 | Matrices and  Transformation  Inverse of a matrix area  scale factor and  determinant of a matrix | **By the end of the lesson, the learner**  **should be able to:-**  Determine the inverse of a  transformation | Practice exercise Ex 1.5  KLB BK 4 | Calculators | - K.M, Advancing in  Math F4 Pg 14-15  - KLB Pg 24-26  - Patel Pg 26  - Malkiat Pg 13 |  |
| 2 | 1 | Matrices and  Transformation  Area of scale factor  and determinant of a  matrix | **By the end of the lesson, the learner**  **should be able to:-**  Establish and use the relationship between  area scale factor and determinant of a  matrix | Practice exercise Ex 1.5  KLB BK 4 pg 27 | Boards and strings  Peg boards and strings  Rubber band  Calculators | - K.M, Advancing in  Math F4 Pg 17-19  - KLB Pg 26-27  - Patel Pg 27  - Malkiat Pg 16 |  |
|  | 2&3 | Matrices and  Transformation  Shear and stretch | **By the end of the lesson, the learner**  **should be able to:-**  Determine shear and stretch | Drawing objects and  images under shear and  stretch. Ex 1.6 | Square boards  Peg boards and strings  Rubber band  Calculators | - K.M, Advancing in  Math F4 Pg 10-13  - KLB Pg 28-34  - Patel Pg 29  - Malkiat Pg 19 |  |
|  | 3&4 | Statistics  Ogive | **By the end of the lesson, the learner**  **should be able to:-**  Use cumulative frequency tables to  Draw the ogive | Drawing cumulative  frequency curve (ogive)  KLB Pg 4, Ex. 2.2 | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 28-29  - KLB Pg 51-52  - Patel Pg 47  - Malkiat Pg 42 |  |
|  | 5&6 | Statistics  Median | **By the end of the lesson, the learner**  **should be able to:-**  Estimate the median and quartiles by  Calculations  Ogive | Practice exercise  KLB Pg 4, Ex. 2.2 | Square boards  Graph papers  Calculators | - K.M, Advancing in  Math F4 Pg 29-31  - KLB Pg 48  - Patel Pg 51  - Malkiat Pg 36 |  |
|  | 7 | Statistics  Quartile | **By the end of the lesson, the learner**  **should be able to:-**  Estimate median and quartiles by  Calculations  ogive | Practice exercise  KLB Pg 4, Ex. 2.2 | Square boards  Graph papers  Calculators | - K.M, Advancing in  Math F4 Pg 29-31  - KLB Pg 46  - Patel Pg 55  - Malkiat Pg 44 |  |
| 4 | 1&2 | Statistics  Range- inter quartile  range | **By the end of the lesson, the learner**  **should be able to:-**  Define and calculate measure of  dispersion-range, quartiles and  inter-quartile range | Practice exercise  KLB Pg 4, Ex. 2.2 | Calculators | - K.M, Advancing in  Math F4 Pg 32-33  - KLB BK 4 Pg  - Patel Pg 48  - Malkiat Pg 44 |  |
|  | 3&4 | Statistics  Quartile deviation | **By the end of the lesson, the learner**  **should be able to:-**  Define and calculate measures of  dispersion – quartile deviation | Practice exercise  KLB Pg 4, Ex. 2.2 | Calculators | - K.M, Advancing in  Math F4 Pg 34-35  - KLB Bk4 Pg 57-59  - Patel Pg 48  - Malkiat Pg 62 |  |
|  | 5 | Statistics  Variance | **By the end of the lesson, the learner**  **should be able to:-**  Define and calculate measures of  Dispersion, variance interpret measure  of dispersion | Practice exercise  KLB Pg 4, Ex. 2.2 | Calculators | - K.M, Advancing in  Math F4 Pg 34-35  - KLB Bk4 Pg 57-59  - Patel Pg 48  - Malkiat Pg 62 |  |
|  | 6&7 | Statistics  Standard deviation | **By the end of the lesson, the learner**  **should be able to:-**  - Define and calculate measures of  dispersion, standard deviation  - Interpret measures of dispersion | Ex. 2.3  Exams – CATS | Calculators | - K.M, Advancing in  Math F4 Pg 34-39  - KLB Bk4 Pg 60  - Patel Pg 64  - Malkiat Pg 48 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 5 | 1&2 | Loci  Common types of Loci | **By the end of the lesson, the learner**  **should be able to:-**  Define locus | Practice exercise  KLB Pg 4, Ex. 3.2 | Geometrical patterns | - K.M, Advancing in  Math F4 Pg 40-41  - KLB Bk4 Pg 68  - Patel Pg 72  - Malkiat Pg 64 |  |
|  | 3 | Loci  Perpendicular bisector  Loci | **By the end of the lesson, the learner**  **should be able to:-**  Describe common types of loci | Practice exercise  KLB Pg 4, Ex. 3.2 | Geometrical patterns | - K.M, Advancing in  Math F4 Pg 40  - KLB Bk4 Pg 60  - Patel Pg 74  - Malkiat Pg 69 |  |
|  | 4&5 | Loci  Loci of a point at a  given distance from a  fixed point and fixed  line | **By the end of the lesson, the learner**  **should be able to:-**  Describe common types of loci | Practice exercise  KLB Pg 4, Ex. 3.2 | Geometrical patterns | - K.M, Advancing in  Math F4 Pg 40  - KLB Bk4 Pg 70-71  - Patel Pg 74  - Malkiat Pg 69 |  |
|  | 6&7 | Loci  Angle bisector  Loci | **By the end of the lesson, the learner**  **should be able to:-**  Describe common types of loci | Practice exercise  KLB Pg 4, Ex. 3.2 | Geometrical patterns | - K.M, Advancing in  Math F4 Pg 41  - KLB Bk4 Pg 71-72  - Patel Pg 75  - Malkiat Pg 70 |  |
| 6 | 1-2 | Loci  Constant angle loci | **By the end of the lesson, the learner**  **should be able to:-**  Describe common types of loci | Practice exercise  KLB Pg 4, Ex. 3.2 | Geometrical patterns | - K.M, Advancing in  Math F4 Pg 42-43  - KLB Bk4 Pg 72-74  - Patel Pg 76  - Malkiat Pg 72 |  |
|  | 3 | Loci  Construction:- loci of  the equalities | **By the end of the lesson, the learner**  **should be able to:-**  Construct loci | Involving inequalities | Geometrical  instruments | - K.M, Advancing in  Math F4 Pg 49  - Patel Pg 83  - Malkiat Pg 89 |  |
|  | 4&5 | Loci  Loci involving chords | **By the end of the lesson, the learner**  **should be able to:-**  Construct loci involving chords | Practice exercise  KLB Pg 4, Ex. 3.5 | Geometrical  instruments | - K.M, Advancing in  Math F4 Pg 45-47  - KLB Bk4 Pg 84  - Patel Pg 86  - Malkiat Pg 85 |  |
|  | 6&7 | Loci  Loci under given  conditions including  intersecting chords | **By the end of the lesson, the learner**  **should be able to:-**  Construct loci involving intersecting  Loci and under given conditions | Practice exercise  KLB Pg 4, Ex. 3.4 | Geometrical  instruments | - K.M, Advancing in  Math F4 Pg 47-49  - Patel Pg 83  - Malkiat Pg 77 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 7 | 1 | Trigonometry  Trigonometric ratios | **By the end of the lesson, the learner**  **should be able to:-**  Recall and define trigonometric ratios | Practice exercise  KLB Pg 4, Ex. 4.1  Advancing BK 4, Ex. 4.1 | Chart illustrating  Trigonometric ratios | - K.M, Advancing in  Math F4 Pg 51-53  - KLB Bk4 Pg 90-93  - Patel Pg 91  - Malkiat Pg 89 |  |
|  | 2 | Trigonometry  Deriving the relation  Sin2 0 + Cos2 0 = 1 | **By the end of the lesson, the learner**  **should be able to:-**  Derive trigonometric identity  Sin2 0 + Cos2 0 = 1 | Practice exercise  Advancing BK 4, Ex. 4.1  Ex 4.2, Ex 4.3 | Charts illustrating the  unit circle and right | - K.M, Advancing in  Math F4 Pg 59-64  - Patel Pg 91  - Malkiat Pg 91 |  |
|  | 3&4 | Trigonometry  Trigonometric ratios  of the form  y = sin x  y = tan x  y = cos x | **By the end of the lesson, the learner**  **should be able to:-**  Draw graphs of trigonometric ratios of  the form y = sin x  y = tan x  y = cos x | Practice exercise  KLB Pg 4, Ex. 4.3  Advancing BK 4,  Ex. 4.4 and 4.5  Patel BK 4, Ex. 4.2 | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 59-64  - KLB Bk4 Pg 96-99  - Patel Pg 93-96  - Malkiat Pg 92 |  |
|  | 6&7 | Trigonometry  Graphs of  Trigonometric relations  y = a sin x  y = a cos x  y = a tan x | **By the end of the lesson, the learner**  **should be able to:-**  Draw graphs of trigonometric relations  y = sin x  y = cos x  y = tan x | Drawing graphs  KLB Pg 4, Ex. 4.3  Advancing BK 4,  Ex. 4.4  Patel BK 4, Ex. 4.3 | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 59-63  - KLB Bk4 Pg 96-99  - Patel Pg 97-102  - Malkiat Pg 92 |  |
| 8 | 1&2 | Trigonometry  Simple trigonometric  equations, amplitudes,  period, wavelength and  phase angle of  trigonometric function | **By the end of the lesson, the learner**  **should be able to:-**  Deduce from the graphs  y = sin x  y = tan x  y = cos x  The amplitude, wavelength and phase  angle | Practice exercise | Trigonometric relations  Graphs | - K.M, Advancing in  Math F4 Pg 59-63  - Patel Pg 93  - Malkiat Pg 117 |  |
|  | 3 | Trigonometry  y = a sin (bx + 0) | **By the end of the lesson, the learner**  **should be able to:-**  Draw graphs of trigonometric ratios of  the form y = a sin (bx + 0) | Drawing graphs | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 60  - Patel Pg 108  - Malkiat Pg 101 |  |
|  | 4 | Trigonometry  y = a cos (bx + 0)  y = a tan (bx + 0) | **By the end of the lesson, the learner**  **should be able to:-**  Draw graphs of trigonometric ratios of  the form y = a cos (bx + 0)  y = a tan (bx + 0) | Drawing graphs | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 59-64  - Patel Pg 109  - Malkiat Pg 107 |  |
|  | 5&6 | Trigonometry  Amplitude, period,  wavelength and phase  Phase angles of  trigonometric function | **By the end of the lesson, the learner**  **should be able to:-**  Deduce the graphs y = a sin (bx + 0)  y = a cos (bx + 0)  y = a tan (bx + 0) | Practice exercise | Trigonometric relations  Graphs | - K.M, Advancing in  Math F4 Pg 59-64  - Patel Pg 113  - Malkiat Pg 92 |  |
|  | 7 | Trigonometry  Solution to simple  Trigonometric  Equations | **By the end of the lesson, the learner**  **should be able to:-**  Solve simple trigonometric equations  analytically and graphically | Practice exercise  KLB Pg 4, Ex. 4.3  Advancing BK 4,  Ex. 4.6  Patel BK 4, Ex. 4.4 | Trigonometric relations  Graphs | - K.M, Advancing in  Math F4 Pg 65-67  - KLB BK 4  Pg 100-102  - Patel Pg 115  - Malkiat Pg 117 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 9 | 1 | Three Dimensional  Geometry  Geometrical properties  of common solids | **By the end of the lesson, the learner**  **should be able to:-**  State the geometric properties of  common solids  *© Education Plus Agencies* | Practice exercise  Advancing BK 4,  Ex. 5.1  KLB Pg 4, Ex. 5.1 | 3-D models | - K.M, Advancing in  Math F4 Pg 72-73  - KLB BK 4  Pg 104-106  - Patel Pg 122  - Malkiat Pg 136 |  |
|  | 2 | Three Dimensional  Geometry  Skew lines projection  of a line onto a plane | **By the end of the lesson, the learner**  **should be able to:-**  Identify projection of a line onto a  Plane | Practice exercise  Advancing BK 4,  Ex. 5.1  KLB Pg 4, Ex. 5.2 | 3-D models | - K.M, Advancing in  Math F4 Pg 73  - KLB BK 4  Pg 118-119  - Patel Pg 125  - Malkiat Pg 139 |  |
|  | 3 | Three Dimensional  Geometry  Length of a line in 3D  Geometry | **By the end of the lesson, the learner**  **should be able to:-**  Calculate the length between two points  in 3D geometry | Practice exercise  Advancing BK 4,  Ex. 5.4 | 3-D models | - K.M, Advancing in  Math F4 Pg 78-80  - Patel Pg 126  - Malkiat Pg 145 |  |
|  | 4 | Three Dimensional  Geometry  Angle between a line  and a line | **By the end of the lesson, the learner**  **should be able to:-**  Identify and calculate the angle between  a line and a line | Practice exercise  Advancing BK 4,  Ex. 5.4 | 3-D models | - K.M, Advancing in  Math F4 Pg 77-80  - Patel Pg 129  - Malkiat Pg 140 |  |
|  | 5 | Three Dimensional  Geometry  A line and a plane | **By the end of the lesson, the learner**  **should be able to:-**  Identify and calculate the angle between  a line and a plane | Practice exercise  Advancing BK 4,  Ex. 5.3 and 5.4  KLB Pg 4, Ex. 5.1 | 3-D models | - K.M, Advancing in  Math F4 Pg 78-80  - KLB BK 4  Pg 106-109  - Patel Pg 129  - Malkiat Pg 140 |  |
|  | 6 | 3-D Geometry  A plane and a plane | **By the end of the lesson, the learner**  **should be able to:-**  Identify and calculate the angle  between a line and a plane | Practice exercise  Advancing BK 4,  Ex. 5.4  KLB Pg 4, Ex. 5.2 | 3-D models | - K.M, Advancing in  Math F4 Pg 78-80  - KLB BK 4  Pg 113-118  - Patel Pg 131  - Malkiat Pg 140 |  |
|  | 7 | 3-D Geometry  Angles between skew  lines | **By the end of the lesson, the learner**  **should be able to:-**  Identify and calculate the angle  between skew lines | Practice exercise  Advancing BK 4,  Ex. 5.4  KLB Pg 4, Ex. 5.2 | 3-D models | - K.M, Advancing in  Math F4 Pg 78-80  - KLB BK 4  Pg 118-119  - Patel Pg 128  - Malkiat Pg 148 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |

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| 10 | 1&2 | Longitudes and  Latitudes  Latitudes and  longitudes (great and  small circle) | **By the end of the lesson, the learner**  **should be able to:-**  Define the great and small circle in  relation to a sphere (including the earth) | Practice exercise  Advancing BK 4,  Ex. 6.2  KLB Pg 4, Ex. 6.1 | Globe  Ball | - K.M, Advancing in  Math F4 Pg 81-83  - KLB BK 4  Pg 125-126  - Patel Pg 144  - Malkiat Pg 154 |  |
|  | 3&4 | Longitudes and  Latitudes  The equator and  Greenwich meridian | **By the end of the lesson, the learner**  **should be able to:-**  Define the great and small circle in  relation to a sphere (including the earth) | Practice exercise  Advancing BK 4,  Ex. 6.2  KLB Pg 4, Ex. 6.1 | Globe  Ball | - K.M, Advancing in  Math F4 Pg 83  - KLB BK 4  Pg 126-127  - Patel Pg 145  - Malkiat Pg 154 |  |
|  | 5 | Longitudes and  Latitudes  Position of a place on  the surface of the earth | **By the end of the lesson, the learner**  **should be able to:-**  Locate a place on the earth’s surface in  terms of latitude and longitude | Practice exercise  Advancing BK 4,  Ex. 6.2  KLB Pg 4, Ex. 6.1 | Globe  Ball | - K.M, Advancing in  Math F4 Pg 86  - KLB BK 4  Pg 128-129  - Patel Pg 147  - Malkiat Pg 157 |  |
|  | 6 | Longitudes and  Latitudes  Radii of small and  great circles | **By the end of the lesson, the learner**  **should be able to:-**  Establish the relationship between the  radii of small and great circles | Practice exercise  Advancing BK 4,  Ex. 6.4  KLB Pg 4, Ex. 6.2 | Globe  Ball | - K.M, Advancing in  Math F4 Pg 89  - KLB BK 4  Pg 133-134  - Patel Pg 147  - Malkiat Pg 156 |  |
|  | 7 | Longitudes and  Latitudes  Distance between two  points along the small  and great circle in  nautical miles and  kilometers | **By the end of the lesson, the learner**  **should be able to:-**  Calculate the distance between two  points along the great circles and small  circles (longitudes and latitudes) in  nautical miles (nm) and kilometres (km) | Practice exercise  Advancing BK 4,  Ex. 6.4  KLB Pg 4, Ex. 6.2 | Globe  Ball | - K.M, Advancing in  Math F4 Pg 87-90  - KLB BK 4  Pg 130-139  - Patel Pg 148-152  - Malkiat Pg 159 |  |
| 11 | 1&2 | Longitudes and  Latitudes  Distance in nautical  miles and kilometers  along a circle of latitude | **By the end of the lesson, the learner**  **should be able to:-**  Calculate the distance in nautical miles  and kilometers along a circle of  latitude | Practice exercise  Advancing BK 4,  Ex. 6.5  KLB Pg 4, Ex. 6.3 | Globe  Ball  Calculators | - K.M, Advancing in  Math F4 Pg 87-98  - KLB BK 4  Pg 130-133  - Patel Pg 152  - Malkiat Pg 164 |  |
|  | 3&4 | Longitudes and  Latitudes  Time and longitude | **By the end of the lesson, the learner**  **should be able to:-**  Calculate time in relation to kilometers  per hour | Practice exercise  Advancing BK 4,  Ex. 6.5  KLB Pg 4, Ex. 6.3 | Globe  Ball  Calculators | - K.M, Advancing in  Math F4 Pg 91-92  - KLBBk4Pg141-142  - Patel Pg 158  - Malkiat Pg 173 |  |
|  | 5-7 | Longitudes and  Latitudes  Speed in knots and  kilometer per hour | **By the end of the lesson, the learner**  **should be able to:-**  Calculate speed in knots and  kilometer per hour | Practice exercise  Advancing BK 4,  Ex. 6.6  KLB Pg 4, Ex. 6.3 | Real life situation | - K.M, Advancing in  Math F4 Pg 96-98  - KLB BK 4 Pg 150  - Patel Pg 164  - Malkiat Pg 184 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 12 | 1-3 | Linear Programming  Formation of linear  Inequalities | **By the end of the lesson, the learner**  **should be able to:-**  Form linear inequalities based on real  life situations | Practice exercise  Advancing BK 4,  Ex. 7.3  KLB BK 4, Ex. 7.1 | Inequalities | - K.M, Advancing in  Math F4 Pg 94-95  - KLB BK 4  Pg 151-152  - Patel Pg 168  - Malkiat Pg 189 |  |
|  | 4&5 | Linear Programming  Analytical solutions  of linear inequalities | **By the end of the lesson, the learner**  **should be able to:-**  Analyze solutions of linear inequalities | Practice exercise  Advancing BK 4,  Ex. 7.1  KLB BK 4, Ex. 7.2 | Square boards  Graph papers | - K.M, Advancing in  Math F4 Pg 95-96  - KLB BK 4  Pg 152-155  - Patel Pg 170  - Malkiat Pg 197 |  |
|  | 6&7 | Linear Programming  Solutions of linear  inequalities by graph | **By the end of the lesson, the learner**  **should be able to:-**  Represent the linear inequalities on a  graph | Representing inequalities  in a graph  Advancing BK 4,  Ex. 7.2  KLB BK 4, Ex. 7.2 | Square boards | - K.M, Advancing in  Math F4 Pg 94-95  - KLB BK 4  Pg 151-152  - Patel Pg 168  - Malkiat Pg 189 |  |
| 13 | 1-3 | Linear Programming  Optimization (include  objective) | **By the end of the lesson, the learner**  **should be able to:-**  Solve and interpret the optimum  solution of the linear inequalities | Practice exercise  Advancing BK 4,  Ex. 7.5  KLB BK 4, Ex. 7.3 | Graph paper | - K.M, Advancing in  Math F4 Pg 95-96  - KLB BK 4  Pg 152-155  - Patel Pg 170  - Malkiat Pg 197 |  |
|  | 4-7 | Linear Programming  Application of linear  programming to real  life situation | **By the end of the lesson, the learner**  **should be able to:-**  Solve and interpret the optimum  solution of the linear programming to  real life situations | Practice exercise  Advancing BK 4,  Ex. 7.5  KLB BK 4, Ex. 7.3 | Real life situations  Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg 99-100  - KLB BK 4  Pg 157-159  - Patel Pg  - Malkiat Pg 201 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 14 | 1&2 | Differentiation  Average and  instantaneous rates of  change | **By the end of the lesson, the learner**  **should be able to:-**  Find out the average rates of change  and instantaneous rate of change | Practice exercise  Advancing BK 4,  Ex. 8.1  KLB BK 4, Ex. 8.1 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg100-103  - KLB BK 4  Pg 157-159  - Patel Pg 177  - Malkiat Pg 212 |  |
|  | 3&4 | Differentiation  Gradient of a curve at  a point | **By the end of the lesson, the learner**  **should be able to:-**  Find the gradient of a curve at a point  using tangent | Practice exercise  Advancing BK 4,  Ex. 8.2  KLB BK 4, Ex. 8.1 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg 109  - KLB BK 4  Pg 162-163  - Patel Pg 181  - Malkiat Pg 214 |  |
|  | 5&6 | Differentiation  Gradient of y = xn  where n is a positive  interger | **By the end of the lesson, the learner**  **should be able to:-**  Find the gradient function of the form  y = xn (n = positive interger) | Practice exercise  Advancing BK 4,  Ex. 8.2 and 8.3  KLB BK 4, Ex. 8.1 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg 110  - KLB BK 4  Pg 164-167  - Patel Pg 183  - Malkiat Pg 214 |  |
|  | 7 | Differentiation  Delta notation (∆) | **By the end of the lesson, the learner**  **should be able to:-**  - Relate the delta notation to rates of  change  - Define derivative of a function  polynomial and differentiation | Practice exercise  Advancing BK 4,  Ex. 8.2 and 8.4  KLB BK 4, Ex. 8.1 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg114-115  - KLB BK 4  Pg 167-170  - Patel Pg 182  - Malkiat Pg 217 |  |
| 15 |  | **END TERM EXAMS** | | | | |  |

**MATHEMATICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM II**

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| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
|  |  | **SCHOOL OPENING** | | | | |  |
| 1 | 1 | Differentiation  Derivation of a  Polynomial | **By the end of the lesson, the learner**  **should be able to:-**  Determine the derivate of a polynomial | Practice exercise  Advancing BK 4,  Ex. 8.1  KLB BK 4, Ex. 8.1 | Polynomials | - K.M, Advancing in  Math F4 Pg116-117  - KLB BK 4  Pg 170-171  - Patel Pg 185  - Malkiat Pg 216 |  |
|  | 2 | Differentiation  Equations of tangents  And normal to the  Curve | **By the end of the lesson, the learner**  **should be able to:-**  Find the equations of tangents and  normals to the curves | Practice exercise  Advancing BK 4,  Ex. 8.5  KLB BK 4, Ex. 8.2 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg117-118  - KLB BK 4  Pg 173-174  - Patel Pg 187  - Malkiat Pg 222 |  |
|  | 3 | Differentiation  Stationery point | **By the end of the lesson, the learner**  **should be able to:-**  Sketch a sketch | Practice exercise  Advancing BK 4,  Ex. 8.6  KLB BK 4, Ex. 8.3 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg118-120  - KLB BK 4  Pg 174-179  - Patel Pg 191  - Malkiat Pg |  |
|  | 4 | Differentiation  Curve sketching | **By the end of the lesson, the learner**  **should be able to:-**  Sketch a curve | Practice exercise  Advancing BK 4,  Ex. 8.7  KLB BK 4, Ex. 8.4 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg120-121  - KLB BK 4  Pg 180-181  - Patel Pg 197  - Malkiat Pg 231 |  |
|  | 5 | Differentiation  Application of  differentiation to  calculation of distance  velocity and acceleration | **By the end of the lesson, the learner**  **should be able to:-**  Apply differentiation in calculating  distance, velocity and accelaration | Practice exercise  Advancing BK 4,  Ex. 8.8  KLB BK 4, Ex. 8.5 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg121-123  - KLB BK 4  Pg 182-183  - Patel Pg 200  - Malkiat Pg 235 |  |
|  | 6&7 | Differentiation  Maxima and minima | **By the end of the lesson, the learner**  **should be able to:-**  Apply differentiation in finding maxima  and minima of a function | Practice exercise  Advancing BK 4,  Ex. 8.9  KLB BK 4, Ex. 8.6 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg118-120  - KLB BK 4  Pg 186-188  - Patel Pg 192  - Malkiat Pg 227 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |

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| 2 | 1&2 | Area Approximations  Area by counting  technique | **By the end of the lesson, the learner**  **should be able to:-**  Relate approximate area of irregular  shapes by counting technique | Practice exercise  Advancing BK 4, Ex. 9.1  KLB BK 4, Ex. 9.1 | Irregular shapes from  Maps  Tracing papers | - K.M, Advancing in  Math F4 Pg125-127  - KLB BK 4  Pg 190-193  - Patel Pg 207  - Malkiat Pg 248 |  |
|  | 3 | Area Approximations  Trapezium rule | **By the end of the lesson, the learner**  **should be able to:-**  Find and derive trapezium rule | Practice exercise  Advancing BK 4, Ex. 9.3  KLB BK 4, Ex. 9.2 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg128-130  - KLB BK 4  Pg 194-199  - Patel Pg 208  - Malkiat Pg 251 |  |
|  | 4 | Area Approximations  Area using trapezium  rule | **By the end of the lesson, the learner**  **should be able to:-**  Apply trapezium rule estimate area  under curves | Practice exercise  Advancing BK 4, Ex. 9.4  KLB BK 4, Ex. 9.2 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg130-132  - KLB BK 4  Pg 195-199  - Patel Pg 210  - Malkiat Pg 251 |  |
|  | 5 | Area Approximations  Mid ordinate rule | **By the end of the lesson, the learner**  **should be able to:-**  Derive the mid ordinate rule | Practice exercise  Advancing BK 4, Ex. 9.5  KLB BK 4, Ex. 9.3 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg132-133  - KLB BK 4  Pg 202-205  - Patel Pg 212  - Malkiat Pg 249 |  |
|  | 6&7 | Area Approximations  Area by mid ordinate  rule | **By the end of the lesson, the learner**  **should be able to:-**  Apply mid ordinate rule to approximate  area under a curve | Practice exercise  Advancing BK 4, Ex. 9.5  KLB BK 4, Ex. 9.3 | Real life situations | - K.M, Advancing in  Math F4 Pg132-133  - KLB BK 4  Pg 202-205  - Patel Pg 212  - Malkiat Pg 249 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| 3 | 1&2 | Integration  Differentiation | **By the end of the lesson, the learner**  **should be able to:-**  Carry out the process of differentiation | Practice exercise  Advancing BK 4,  Ex. 10.1  KLB BK 4, Ex. 10.1 | Real life situations | - K.M, Advancing in  Math F4 Pg133-134  - KLB BK 4  Pg 202-205  - Patel Pg 213-215  - Malkiat Pg 249 |  |
|  | 3&4 | Integration  Reverse differentiation | **By the end of the lesson, the learner**  **should be able to:-**  Reverse differentiation | Practice exercise  Advancing BK 4,  Ex. 10.1 and 10.2  KLB BK 4, Ex. 10.1 | Real life situations | - K.M, Advancing in  Math F4 Pg135-138  - KLBBK4Pg207-210  - Patel Pg 212  - Malkiat Pg 249 |  |
|  | 5-7 | Integration  Integration, notation  and sum of area  trapezia | **By the end of the lesson, the learner**  **should be able to:-**  Integrate notations and sum of areas  of trapezia | Practice exercise  Advancing BK 4,  Ex. 10.3  KLB BK 4, Ex. 10.1 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg138-140  - KLB BK 4  Pg 212-215  - Patel Pg 232  - Malkiat Pg 268 |  |
| 4 | 1-3 | Integration  Indefinite and definite  intergral | **By the end of the lesson, the learner**  **should be able to:-**  Indefine and define intergral | Practice exercise  Advancing BK 4,  Ex. 10.4  KLB BK 4, Ex. 10.2 | Square boards  Graph paper | - K.M, Advancing in  Math F4 Pg140-142  - KLB BK 4  Pg 212-215  - Patel Pg 234  - Malkiat Pg 268 |  |
|  | 4&5 | Integration  Integral notation | **By the end of the lesson, the learner**  **should be able to:-**  Intergral notation | Practice exercise  Advancing BK 4,  Ex. 10.5  KLB BK 4, Ex. 10.3 | Polynomials | - K.M, Advancing in  Math F4 Pg142-145  - KLB BK 4  Pg 215-220  - Patel Pg 234-237  - Malkiat Pg 266 |  |
|  | 6&7 | Integration  Application in  Kinematics | **By the end of the lesson, the learner**  **should be able to:-**  Apply in kinematics | Practice exercise  Advancing BK 4,  Ex. 10.6  KLB BK 4, Ex. 10.4 | Real life situations | - K.M, Advancing in  Math F4 Pg145-160  - KLB BK 4  Pg 223-225  - Patel Pg 245  - Malkiat Pg 276 |  |
|  |  | **TOPICAL EXAMS** | | | | |  |
| Week |  | **TOPICAL REVISIONS** | | | | |  |
| 5 | Form two topics chapter one to four (cube and cube root ) | | | | |  |  |
| 6 | Form two topics chapter five to nine (reflection and congruence) | | | | |  |  |
| 7 | Form two topics chapter nine to thirteen (trigonometrical ratios, area of a triangle, area of quadrilaterals, parts of a circle,  surface area of solids) | | | | |  |  |
| 8 | Form two topics chapter fourteen to seventeen (volume of solids, quadratic expressions and equations, linear inequalities,  linear motions) | | | | |  |  |
| 9 | Form two topics chapter eighteen to twenty (statistics, angle properties of a circle and vectors and translation) | | | | |  |  |
| 10-13 | **KCSE TRIAL EXAMS** | | | | |  |  |

**MATHEMATICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM III**

**REFERENCES:**

1. Advancing in Mathematics BK 4 By Longhorn Kenya Publishers
2. Secondary Mathematics BK 4 By KLB
3. Patel Mathematics BK 4
4. Discovering Secondary Mathematics BK 4 By OVP
5. Form Four Maths By Malkiat Singh
6. Test it and Fix Maths
7. KIE Mathematics forms 2 and 3
8. Golden Tips Mathematics
9. Gateway KCSE Revision Mathematics
10. Solving Problems VOL I and II By Mutuuri

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| Week | **REVISING TRIAL EXAMS (TOPICAL REVISIONS)** |  |  |
| 1 | Form three topics chapter one to six (quadratic expressions, errors and approximations, trigonometry, surds, further  logarithms, commercial arithmetics) |  |  |
| 2 | Form three topics chapter seven to twelve (circle, chords and tangents, matrices, formula and variations, sequence and  series, vectors, binomial expansion) |  |  |
| 3 | Form three topics chapter thirteen to fifteen (probabilities, compound proportions, mixtures and rates of work, graphical  methods) |  |  |
| 4 | Form four topics chapter one to four (matrices and transformations, statistics, locus and loci, trigonometry) |  |  |
| 5 | Form four topics chapter five to eight (three dimensions, longitude and latitudes, linear programming, differentiation) |  |  |
| 6 | Form four topics chapter nine to ten (area approximations and integration) |  |  |
| 7-12 | **KCSE EXAMS** |  |  |