**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 TransformationTransformation on a Cartesian plane | **By the end of the lesson, the learner** **should be able to:-**Relate image and objects under a giventransformation on the Cartesian plane | Drawing objects and their images on Cartesian planePractice Ex 1.1 P5 | Square boardsPeg boards and stringsRubber band | - K.M, Advancing in Math F4 Pg 1-3- KLB Pg 1-6- Patel Pg 7- Malkiat Pg 1 |  |
|  | 2 | Matrices and TransformationIdentification of transformation matrix | **By the end of the lesson, the learner** **should be able to:-**Determine the matrix of a transformation | Practice exerciseKLB EX 1.2 and 1.3 | Square boardsPeg boards and stringsRubber band | - K.M, Advancing in Math F4 Pg 3-9- KLB Pg 6-16- Patel- Malkiat Pg 3 |  |
|  | 3&4 | Matrices and TransformationSuccessive Transformation | **By the end of the lesson, the learner** **should be able to:-**Perform successive transformation | Drawing objects and itssuccessive imagesKLB Ex 1.4 | Square boardsPeg boards and stringsRubber band | - K.M, Advancing in Math F4 Pg 15-17- KLB Pg 16-24- Patel Pg 18- Malkiat Pg 9 |  |
|  | 5 | Matrices and TransformationSingle matrix oftransformation 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 itssuccessive imagesKLB Ex 1.4 | Square boardsPeg boards and stringsRubber band | - K.M, Advancing in Math F4 Pg 15-17- KLB Pg 21- Patel Pg 18- Malkiat Pg 11 |  |
|  | 6 | Matrices and TransformationRelate Identity Matrixand Transformation  | **By the end of the lesson, the learner** **should be able to:-**Relate identity matrix and transformation | Practice exercise Ex 1.4KLB 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 TransformationInverse of a matrix areascale 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 1.5KLB 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 TransformationArea of scale factor and determinant of amatrix | **By the end of the lesson, the learner** **should be able to:-**Establish and use the relationship betweenarea scale factor and determinant of a matrix  | Practice exercise Ex 1.5KLB BK 4 pg 27 | Boards and stringsPeg boards and stringsRubber bandCalculators | - K.M, Advancing in Math F4 Pg 17-19- KLB Pg 26-27- Patel Pg 27- Malkiat Pg 16 |  |
|  | 2&3 | Matrices and TransformationShear and stretch | **By the end of the lesson, the learner** **should be able to:-**Determine shear and stretch | Drawing objects and images under shear andstretch. Ex 1.6 | Square boardsPeg boards and stringsRubber bandCalculators  | - K.M, Advancing in Math F4 Pg 10-13- KLB Pg 28-34- Patel Pg 29- Malkiat Pg 19 |  |
|  | 3&4 | StatisticsOgive | **By the end of the lesson, the learner** **should be able to:-**Use cumulative frequency tables toDraw the ogive | Drawing cumulativefrequency curve (ogive)KLB Pg 4, Ex. 2.2 | Square boardsGraph papers | - K.M, Advancing in Math F4 Pg 28-29- KLB Pg 51-52- Patel Pg 47- Malkiat Pg 42 |  |
|  | 5&6 | StatisticsMedian  | **By the end of the lesson, the learner** **should be able to:-**Estimate the median and quartiles byCalculationsOgive | Practice exerciseKLB Pg 4, Ex. 2.2 | Square boardsGraph papersCalculators  | - K.M, Advancing in Math F4 Pg 29-31- KLB Pg 48- Patel Pg 51- Malkiat Pg 36 |  |
|  | 7 | StatisticsQuartile | **By the end of the lesson, the learner** **should be able to:-**Estimate median and quartiles byCalculationsogive | Practice exerciseKLB Pg 4, Ex. 2.2 | Square boardsGraph papersCalculators  | - K.M, Advancing in Math F4 Pg 29-31- KLB Pg 46- Patel Pg 55- Malkiat Pg 44 |  |
| 4 | 1&2 | StatisticsRange- inter quartilerange | **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 exerciseKLB 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 | StatisticsQuartile deviation | **By the end of the lesson, the learner** **should be able to:-**Define and calculate measures ofdispersion – quartile deviation | Practice exerciseKLB 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 | StatisticsVariance | **By the end of the lesson, the learner** **should be able to:-**Define and calculate measures ofDispersion, variance interpret measureof dispersion | Practice exerciseKLB 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 | StatisticsStandard 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. 2.3Exams – 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 | LociCommon types of Loci | **By the end of the lesson, the learner** **should be able to:-**Define locus | Practice exerciseKLB 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 | LociPerpendicular bisectorLoci | **By the end of the lesson, the learner** **should be able to:-**Describe common types of loci | Practice exerciseKLB 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 | LociLoci of a point at agiven distance from afixed point and fixedline | **By the end of the lesson, the learner** **should be able to:-**Describe common types of loci | Practice exerciseKLB 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 | LociAngle bisectorLoci | **By the end of the lesson, the learner** **should be able to:-**Describe common types of loci | Practice exerciseKLB 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 | LociConstant angle loci | **By the end of the lesson, the learner** **should be able to:-**Describe common types of loci | Practice exerciseKLB 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 | LociConstruction:- loci ofthe 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 | LociLoci involving chords | **By the end of the lesson, the learner** **should be able to:-**Construct loci involving chords | Practice exerciseKLB 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 | LociLoci under given conditions includingintersecting chords | **By the end of the lesson, the learner** **should be able to:-**Construct loci involving intersectingLoci and under given conditions | Practice exerciseKLB 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 | TrigonometryTrigonometric ratios | **By the end of the lesson, the learner** **should be able to:-**Recall and define trigonometric ratios | Practice exerciseKLB Pg 4, Ex. 4.1Advancing BK 4, Ex. 4.1 | Chart illustratingTrigonometric ratios | - K.M, Advancing in Math F4 Pg 51-53- KLB Bk4 Pg 90-93- Patel Pg 91- Malkiat Pg 89 |  |
|  | 2 | TrigonometryDeriving the relationSin2 0 + Cos2 0 = 1 | **By the end of the lesson, the learner** **should be able to:-**Derive trigonometric identitySin2 0 + Cos2 0 = 1 | Practice exerciseAdvancing BK 4, Ex. 4.1Ex 4.2, Ex 4.3 | Charts illustrating theunit circle and right | - K.M, Advancing in Math F4 Pg 59-64- Patel Pg 91- Malkiat Pg 91 |  |
|  | 3&4 | TrigonometryTrigonometric ratios of the formy = sin xy = tan xy = cos x | **By the end of the lesson, the learner** **should be able to:-**Draw graphs of trigonometric ratios ofthe form y = sin x y = tan x y = cos x | Practice exerciseKLB Pg 4, Ex. 4.3Advancing BK 4, Ex. 4.4 and 4.5Patel BK 4, Ex. 4.2 | Square boardsGraph papers | - K.M, Advancing in Math F4 Pg 59-64- KLB Bk4 Pg 96-99- Patel Pg 93-96- Malkiat Pg 92 |  |
|  | 6&7 | TrigonometryGraphs of Trigonometric relationsy = a sin xy = a cos x y = a tan x | **By the end of the lesson, the learner** **should be able to:-**Draw graphs of trigonometric relationsy = sin xy = cos x y = tan x | Drawing graphs KLB Pg 4, Ex. 4.3Advancing BK 4, Ex. 4.4Patel BK 4, Ex. 4.3 | Square boardsGraph 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 | TrigonometrySimple trigonometricequations, amplitudes,period, wavelength andphase angle oftrigonometric function | **By the end of the lesson, the learner** **should be able to:-**Deduce from the graphsy = sin xy = tan xy = cos xThe amplitude, wavelength and phaseangle | Practice exercise | Trigonometric relationsGraphs | - K.M, Advancing in Math F4 Pg 59-63- Patel Pg 93- Malkiat Pg 117 |  |
|  | 3 | Trigonometryy = 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 boardsGraph papers | - K.M, Advancing in Math F4 Pg 60- Patel Pg 108- Malkiat Pg 101 |  |
|  | 4 | Trigonometryy = 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 ofthe form y = a cos (bx + 0) y = a tan (bx + 0) | Drawing graphs | Square boardsGraph papers | - K.M, Advancing in Math F4 Pg 59-64- Patel Pg 109- Malkiat Pg 107 |  |
|  | 5&6 | TrigonometryAmplitude, period,wavelength and phasePhase 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 relationsGraphs | - K.M, Advancing in Math F4 Pg 59-64- Patel Pg 113- Malkiat Pg 92 |  |
|  | 7 | TrigonometrySolution to simpleTrigonometric Equations | **By the end of the lesson, the learner** **should be able to:-**Solve simple trigonometric equationsanalytically and graphically | Practice exerciseKLB Pg 4, Ex. 4.3Advancing BK 4, Ex. 4.6Patel BK 4, Ex. 4.4 | Trigonometric relationsGraphs | - 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 DimensionalGeometryGeometrical propertiesof 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 exerciseAdvancing BK 4, Ex. 5.1KLB 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 DimensionalGeometrySkew lines projectionof 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 exerciseAdvancing BK 4, Ex. 5.1KLB 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 DimensionalGeometryLength of a line in 3DGeometry | **By the end of the lesson, the learner** **should be able to:-**Calculate the length between two pointsin 3D geometry | Practice exerciseAdvancing 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 DimensionalGeometryAngle between a line and a line | **By the end of the lesson, the learner** **should be able to:-**Identify and calculate the angle betweena line and a line | Practice exerciseAdvancing 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 DimensionalGeometryA line and a plane | **By the end of the lesson, the learner** **should be able to:-**Identify and calculate the angle betweena line and a plane | Practice exerciseAdvancing BK 4, Ex. 5.3 and 5.4KLB 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 GeometryA plane and a plane | **By the end of the lesson, the learner** **should be able to:-**Identify and calculate the anglebetween a line and a plane | Practice exerciseAdvancing BK 4, Ex. 5.4KLB 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 GeometryAngles between skewlines  | **By the end of the lesson, the learner** **should be able to:-**Identify and calculate the angle between skew lines | Practice exerciseAdvancing BK 4, Ex. 5.4KLB 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 andLatitudesLatitudes and longitudes (great andsmall 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 exerciseAdvancing BK 4, Ex. 6.2KLB Pg 4, Ex. 6.1 | GlobeBall  | - K.M, Advancing in Math F4 Pg 81-83- KLB BK 4  Pg 125-126- Patel Pg 144- Malkiat Pg 154 |  |
|  | 3&4 | Longitudes andLatitudesThe equator andGreenwich meridian | **By the end of the lesson, the learner** **should be able to:-**Define the great and small circle inrelation to a sphere (including the earth) | Practice exerciseAdvancing BK 4, Ex. 6.2KLB Pg 4, Ex. 6.1 | GlobeBall  | - K.M, Advancing in Math F4 Pg 83- KLB BK 4  Pg 126-127- Patel Pg 145- Malkiat Pg 154 |  |
|  | 5 | Longitudes andLatitudesPosition of a place onthe surface of the earth | **By the end of the lesson, the learner** **should be able to:-**Locate a place on the earth’s surface interms of latitude and longitude | Practice exerciseAdvancing BK 4, Ex. 6.2KLB Pg 4, Ex. 6.1 | GlobeBall  | - K.M, Advancing in Math F4 Pg 86- KLB BK 4  Pg 128-129- Patel Pg 147- Malkiat Pg 157 |  |
|  | 6 | Longitudes andLatitudesRadii of small andgreat circles | **By the end of the lesson, the learner** **should be able to:-**Establish the relationship between theradii of small and great circles | Practice exerciseAdvancing BK 4, Ex. 6.4KLB Pg 4, Ex. 6.2 | GlobeBall  | - K.M, Advancing in Math F4 Pg 89- KLB BK 4  Pg 133-134- Patel Pg 147- Malkiat Pg 156 |  |
|  | 7 | Longitudes andLatitudesDistance between twopoints along the smalland great circle innautical miles and kilometers | **By the end of the lesson, the learner** **should be able to:-**Calculate the distance between twopoints along the great circles and smallcircles (longitudes and latitudes) innautical miles (nm) and kilometres (km) | Practice exerciseAdvancing BK 4, Ex. 6.4KLB Pg 4, Ex. 6.2 | GlobeBall  | - 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 andLatitudesDistance in nautical miles and kilometersalong a circle of latitude | **By the end of the lesson, the learner** **should be able to:-**Calculate the distance in nautical milesand kilometers along a circle of latitude  | Practice exerciseAdvancing BK 4, Ex. 6.5KLB Pg 4, Ex. 6.3 | GlobeBall 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 andLatitudesTime and longitude | **By the end of the lesson, the learner** **should be able to:-**Calculate time in relation to kilometersper hour  | Practice exerciseAdvancing BK 4, Ex. 6.5KLB Pg 4, Ex. 6.3 | GlobeBall Calculators | - K.M, Advancing in Math F4 Pg 91-92- KLBBk4Pg141-142- Patel Pg 158- Malkiat Pg 173 |  |
|  | 5-7 | Longitudes andLatitudesSpeed in knots andkilometer per hour | **By the end of the lesson, the learner** **should be able to:-**Calculate speed in knots andkilometer per hour | Practice exerciseAdvancing BK 4, Ex. 6.6KLB 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 ProgrammingFormation of linearInequalities | **By the end of the lesson, the learner** **should be able to:-**Form linear inequalities based on reallife situations | Practice exerciseAdvancing BK 4, Ex. 7.3KLB 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 ProgrammingAnalytical solutionsof linear inequalities | **By the end of the lesson, the learner** **should be able to:-**Analyze solutions of linear inequalities | Practice exerciseAdvancing BK 4, Ex. 7.1KLB BK 4, Ex. 7.2 | Square boardsGraph 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 ProgrammingSolutions of linearinequalities by graph | **By the end of the lesson, the learner** **should be able to:-**Represent the linear inequalities on agraph | Representing inequalitiesin a graphAdvancing BK 4, Ex. 7.2KLB 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 ProgrammingOptimization (includeobjective) | **By the end of the lesson, the learner** **should be able to:-**Solve and interpret the optimum solution of the linear inequalities | Practice exerciseAdvancing BK 4, Ex. 7.5KLB 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 ProgrammingApplication of linearprogramming to reallife situation | **By the end of the lesson, the learner** **should be able to:-**Solve and interpret the optimum solution of the linear programming toreal life situations | Practice exerciseAdvancing BK 4, Ex. 7.5KLB BK 4, Ex. 7.3 | Real life situationsSquare boardsGraph 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 | DifferentiationAverage and instantaneous rates ofchange | **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 exerciseAdvancing BK 4, Ex. 8.1KLB BK 4, Ex. 8.1 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg100-103- KLB BK 4  Pg 157-159- Patel Pg 177- Malkiat Pg 212 |  |
|  | 3&4 | DifferentiationGradient of a curve ata point | **By the end of the lesson, the learner** **should be able to:-**Find the gradient of a curve at a pointusing tangent | Practice exerciseAdvancing BK 4, Ex. 8.2KLB BK 4, Ex. 8.1 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg 109- KLB BK 4  Pg 162-163- Patel Pg 181- Malkiat Pg 214 |  |
|  | 5&6 | DifferentiationGradient of y = xn where n is a positiveinterger | **By the end of the lesson, the learner** **should be able to:-**Find the gradient function of the formy = xn (n = positive interger) | Practice exerciseAdvancing BK 4, Ex. 8.2 and 8.3KLB BK 4, Ex. 8.1 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg 110- KLB BK 4  Pg 164-167- Patel Pg 183- Malkiat Pg 214 |  |
|  | 7 | DifferentiationDelta 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 exerciseAdvancing BK 4, Ex. 8.2 and 8.4KLB BK 4, Ex. 8.1 | Square boardsGraph 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** |  |

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**TERM II**

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|  |  | **SCHOOL OPENING** |  |
| 1 | 1 | DifferentiationDerivation of a Polynomial | **By the end of the lesson, the learner** **should be able to:-**Determine the derivate of a polynomial | Practice exerciseAdvancing BK 4, Ex. 8.1KLB 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 | DifferentiationEquations of tangents And normal to theCurve | **By the end of the lesson, the learner** **should be able to:-**Find the equations of tangents andnormals to the curves | Practice exerciseAdvancing BK 4, Ex. 8.5KLB BK 4, Ex. 8.2 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg117-118- KLB BK 4  Pg 173-174- Patel Pg 187- Malkiat Pg 222 |  |
|  | 3 | DifferentiationStationery point | **By the end of the lesson, the learner** **should be able to:-**Sketch a sketch | Practice exerciseAdvancing BK 4, Ex. 8.6KLB BK 4, Ex. 8.3 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg118-120- KLB BK 4  Pg 174-179- Patel Pg 191- Malkiat Pg  |  |
|  | 4 | DifferentiationCurve sketching | **By the end of the lesson, the learner** **should be able to:-**Sketch a curve | Practice exerciseAdvancing BK 4, Ex. 8.7KLB BK 4, Ex. 8.4 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg120-121- KLB BK 4  Pg 180-181- Patel Pg 197- Malkiat Pg 231 |  |
|  | 5 | DifferentiationApplication of differentiation to calculation of distancevelocity and acceleration | **By the end of the lesson, the learner** **should be able to:-**Apply differentiation in calculatingdistance, velocity and accelaration | Practice exerciseAdvancing BK 4, Ex. 8.8KLB BK 4, Ex. 8.5 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg121-123- KLB BK 4  Pg 182-183- Patel Pg 200- Malkiat Pg 235 |  |
|  | 6&7 | DifferentiationMaxima and minima | **By the end of the lesson, the learner** **should be able to:-**Apply differentiation in finding maximaand minima of a function | Practice exerciseAdvancing BK 4, Ex. 8.9KLB BK 4, Ex. 8.6 | Square boardsGraph 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 ApproximationsArea by countingtechnique | **By the end of the lesson, the learner** **should be able to:-**Relate approximate area of irregularshapes by counting technique | Practice exerciseAdvancing BK 4, Ex. 9.1KLB BK 4, Ex. 9.1 | Irregular shapes fromMapsTracing papers | - K.M, Advancing in Math F4 Pg125-127- KLB BK 4  Pg 190-193- Patel Pg 207- Malkiat Pg 248 |  |
|  | 3 | Area ApproximationsTrapezium rule | **By the end of the lesson, the learner** **should be able to:-**Find and derive trapezium rule | Practice exerciseAdvancing BK 4, Ex. 9.3KLB BK 4, Ex. 9.2 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg128-130- KLB BK 4  Pg 194-199- Patel Pg 208- Malkiat Pg 251 |  |
|  | 4 | Area ApproximationsArea using trapeziumrule | **By the end of the lesson, the learner** **should be able to:-**Apply trapezium rule estimate areaunder curves | Practice exerciseAdvancing BK 4, Ex. 9.4KLB BK 4, Ex. 9.2 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg130-132- KLB BK 4  Pg 195-199- Patel Pg 210- Malkiat Pg 251 |  |
|  | 5 | Area ApproximationsMid ordinate rule | **By the end of the lesson, the learner** **should be able to:-**Derive the mid ordinate rule | Practice exerciseAdvancing BK 4, Ex. 9.5KLB BK 4, Ex. 9.3 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg132-133- KLB BK 4  Pg 202-205- Patel Pg 212- Malkiat Pg 249 |  |
|  | 6&7 | Area ApproximationsArea by mid ordinaterule | **By the end of the lesson, the learner** **should be able to:-**Apply mid ordinate rule to approximatearea under a curve | Practice exerciseAdvancing BK 4, Ex. 9.5KLB 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 | IntegrationDifferentiation | **By the end of the lesson, the learner** **should be able to:-**Carry out the process of differentiation | Practice exerciseAdvancing BK 4, Ex. 10.1KLB 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 | IntegrationReverse differentiation | **By the end of the lesson, the learner** **should be able to:-**Reverse differentiation | Practice exerciseAdvancing BK 4, Ex. 10.1 and 10.2KLB 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 | IntegrationIntegration, notationand sum of areatrapezia | **By the end of the lesson, the learner** **should be able to:-**Integrate notations and sum of areasof trapezia | Practice exerciseAdvancing BK 4, Ex. 10.3KLB BK 4, Ex. 10.1 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg138-140- KLB BK 4  Pg 212-215- Patel Pg 232- Malkiat Pg 268 |  |
| 4 | 1-3 | IntegrationIndefinite and definiteintergral | **By the end of the lesson, the learner** **should be able to:-**Indefine and define intergral | Practice exerciseAdvancing BK 4, Ex. 10.4KLB BK 4, Ex. 10.2 | Square boardsGraph paper | - K.M, Advancing in Math F4 Pg140-142- KLB BK 4  Pg 212-215- Patel Pg 234- Malkiat Pg 268 |  |
|  | 4&5 | IntegrationIntegral notation | **By the end of the lesson, the learner** **should be able to:-**Intergral notation | Practice exerciseAdvancing BK 4, Ex. 10.5KLB 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 | IntegrationApplication inKinematics | **By the end of the lesson, the learner** **should be able to:-**Apply in kinematics | Practice exerciseAdvancing BK 4, Ex. 10.6KLB 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, furtherlogarithms, commercial arithmetics) |  |  |
| 2 | Form three topics chapter seven to twelve (circle, chords and tangents, matrices, formula and variations, sequence andseries, vectors, binomial expansion) |  |  |
| 3 | Form three topics chapter thirteen to fifteen (probabilities, compound proportions, mixtures and rates of work, graphicalmethods) |  |  |
| 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** |  |  |