MATHEMATICS SS3
SECOND TERM
SCHEME OF WORK

WEEK(S) TOPIC

1. Review of first term work: (i) Bonds and debentures (ii) Shares (iii) Rates (iv) Income tax and (v) Value added tax.
2. CO-ORDINATE GEOMETRY OF STRAIGHT LINE: Cartesian coordinate (ii) plotting the linear graph (iii) determine the distance between two coordinate points. (iv) Finding the mid-point of the line joining two point (v) practical application of coordinate geometry.(vi) Gradient and intercept of a straight line.
3. COORDINATE GEOMETRY OF A STRAIGHT LINE CONTINEUS: (I) Define gradient and intercepts of a line. (ii) Find the angle between two intersecting straight lines (iii) Application of linear graphs to real life student.
4. DIFFERENTIATION OF ALGEBRAIC FUNCTION: (I) Meaning of differentiation/ derived function (ii) differentiation from first principle (iii) standard derivative of some basic functions.
5. DIFFERENTIATION OF ALGEBRAIC FUNCTION CONTINEUS: Rules of differentiation such as: (a) Sum and difference (b) Product rule (c) Quotient rule. (d) Application of real situation such as Maximal, Minima velocity, Acceleration and rate of change.
6. INTEGRATION AND EVALUATION SIMPLE ALGEBRAIC FUNCTION: (i) definition (ii) Method of integration: (a) substitution method (b) partial fraction method (c) part. (iii) Application of integration in calculating area under the curve (iv) Use of Simpson's rule to find the area under the curve.

7-12. Revision and Mock Examination.

WEEK 1
REVIEW OF FIRST TERM WORK

BONDS: A bond is a documentary obligation to pay a sum of money or to perform a contract.
DEBENTURE: Is a certificate that certifies an amount of money owed to someone or promises to pay of the issuer a specific amount of money.
SHARES: is a portion of something given or allotted to someone from investment (Dividends).
RATE: a rate can be defined as a payment or levy paid to an authority or individual on the use of property (ratable value).
INCOME TAX: This is the amount taken from salaries of workers for the services provided by the government. Such as security, education, health roads etc.
VALUE ADDED TAX (VAT): this is a certain amount taken any goods sold or purchased by a customer.
EXAMPLE RATE
Find the rate at 85kobo in the # on the house of ratable value of #216.
SOLUTION
Value of the house #216 or 21600kobo
Amount payable on every # to the government =

$= \#216 \times \frac{85}{100} = \#183.60$

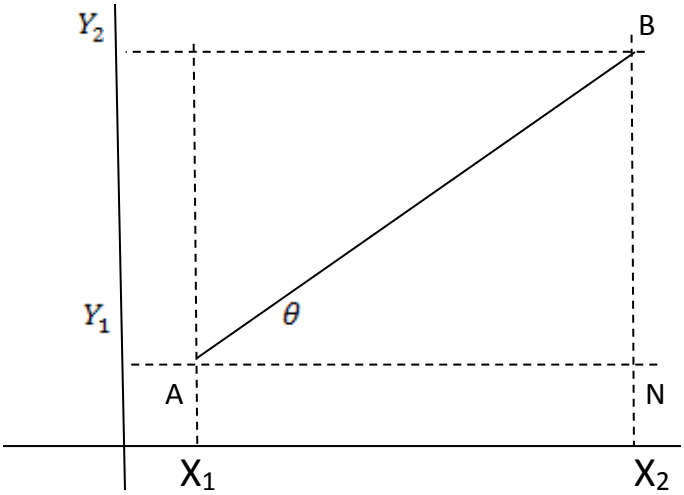
ASSESSMENT: (a) A man with an annual salary of #4200 has allowances of #1400. How much does he pay each year in income tax?
(b) to raise an income of #4176000 a town declares a rate of 87 kobo in the naira. What is the ratable value of the town?
(c) the annual rates at 73 cents in the dollar on a house are $262.80. What is the ratable value?
(d) A certain doctor has a salary of #11500. His allowances, which include the expenses of running the practice, are #4800. Find the total amount he pays each year in tax.

WEEK 2

CO-ORDINATE GEOMETRY

Coordinate geometry is an aspect of geometry that deals with points and lines joining them.

GRADIENT OF A LINE: This is the sloping degree of a line joining two points and it is measured by the ratio of the increment in vertical axis to that of the horizontal axis.



Gradient or slope (M) = $\frac{BN}{AN} = \frac{Y_2 - Y_1}{X_2 - X_1}$. From the above diagram.

$\tan\theta = \frac{BN}{AN}$. Therefore, the slope or gradient can be regarded as tangent of the inclination angle to the Horizontal.

DISTANCE BETWEEN TWO POINTS:

This is defined as the length of the line segment joining any two points.

From the diagram above, (by Pythagoras theorem)

$AB^2 = AN^2 + BN^2$ ∴ AB = $\sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$

MID-POINT OF A LINE SEGMENT:

This is defined as the coordinates of the middle points of the line joining two points.

$\bar{Y} = \frac{Y_1 + Y_2}{2}$, $\grave{\text{и}} = \frac{X_1 + X_2}{2}$

∴ Mid-point = $(\grave{\text{и}}, \bar{Y})$.

GRADIEND AND INTERCEPT FORM:

This is the form that includes the gradient (M) and the intercept (C) on Y-axis

Y = MX + C. where M is the gradient of the line and C is the intercept on Y-axis (Equation of the straight line).

EXAMPLE DISTANCE

Find the distance between the points A(3,-2) and B(8,10).

SOLUTION

Distance (AB) = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$= \sqrt{(8-3)^2 + (10-(-2))^2} = \sqrt{5^2 + 12^2}$

$= \sqrt{25 + 144} = \sqrt{169}$

Distance (AB) = 13

EXAMPLE MID-POINT

Find the mid- point of the line joining the points P(4,2) and Q(-5,0).

SOLUTION

Mid –point = $(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$

$= (\frac{4+(-5)}{2}, \frac{2+0}{2}) = (-\frac{1}{2}, 1)$

EXAMPLE GRADIENT AND INTERCEPT FORM

Determine the gradient and intercept from…