Zamani College Kaduna

September 2014   **Assignment**

SS2 General Mathematics

Instructions: *Answer* **all** *the questions in a new exercise book. In* **each** *question, all necessary details of working including rough work* **must** *be shown with the answer.*

Part One

1.   (a) Express the following in standard form correct to 2 decimal places

          (i) 879.78   (ii) 0.001263   (iii) 0.004375

     (b) Use logarithm tables to evaluate $\dfrac{\sqrt{0.392} \times 0.0231^3}{0.4189}$, correct to three significant figures.

2.   (a) Approximate   (i)   276.48 to 3 significant figures

                              (ii) 0.006764 to 2 significant figures

                              (iii) 79.89 to nearest whole number

     (b) The distance between points A and B is given as 300m. Find the error if the distance is measured to

     (i) the nearest metre   (ii) the nearest 10m   (iii) the nearest 100m

     (c) A square measures 12m by 12m. A student measures it and uses the measurement to calculate the
          perimeter and area of the square. Calculate his percentage error in the perimeter and area of the
          square.

Part Two

1.   (a) Solve the equation $\dfrac{4}{2-y} - \dfrac{3}{y+3} = 0$.

     (b) Simplify $\dfrac{x^3 - xy^2}{x^2 - xy}$.

2.   (a) Given that $x = \dfrac{2a+3}{3a-2}$, express $\dfrac{x-1}{2x+1}$ in terms of a.

     (b) If $\dfrac{x}{y} = \dfrac{2}{7}$, evaluate $\dfrac{7x+y}{x - \frac{1}{7}y}$.

3.   Given the expression $\dfrac{y^2 - 3y - 4}{(2y+1)^2}$, find the value(s) of y for which the expression is

     (a) equal to zero.

     (b) undefined.

Part Three

1.　(a) Find the value of k for which $x^2 + 5x + k$ is a perfect square. Hence, factorise your result.

　　(b) By using the completing the square method, solve $4x^2 + 5x - 25 = 0$, leave your answer in surd form.

　　(c) Find the equation whose roots are 3.5 and -2.

2.　The sum of the 4th and 6th terms of an arithmetic progression is 42. The sum of the 3rd and 9th terms is 52. Find

　　(a) the first term

　　(b) the common difference

　　(c) the 21st term

　　(d) the sum of the first 21 terms of the progression.

3.　Mr Mansah starts a job with an annual salary of ₦640 000 which increase by ₦2400 every year. After working for eight years, he was promoted to a new post with an annual salary of ₦950 000 with increase of ₦3 600 every year. Calculate his

　　(a) annual salary in the fifteenth year of service

　　(b) total earnings at the end of the fifteenth year of service.

Part Four

1.　The second and the sixth terms of a geometric progression are 9 and $\dfrac{1}{9}$ respectively. Calculate

　　(a) the common ratio

　　(b) the first term

　　(c) the 10 term, leave your answer in index form

　　(d) the sum of the first 20 terms.

　　(e) the sum to infinity

2.　If $(3 - x)$, 6, $(7 - 5x)$ are consecutive terms of a geometric progression (G.P) with constant ratio $r > 0$, find the (a) values of x　　　(b) constant ratio　　　(c) the sum of the GP.