**MATHEMATICS**

**FORM 3**

**TIME: 1**$\frac{1}{2}$ **HOURS.**

**NAME………………………………………………………………………………**

**ADM NUMBER……………………**

***Attempt ALL the questions in the spaces provided(60marks)***

1. The dimensions of a rectangle are measured and given as 6.9 cm by 3.06 cm, Calculate to 4 s.f. the percentage error in the area. (3 marks)

2. Use complete square method to solve for x (4 mks)

8x2 + 6x – 9 = 0

3. Use logarithms correct to 4 decimal places to evaluate. (4marks)



4. The dimensions of a rectangle are 40cm and 45cm. If there is an error of 5% in the length and 8% in the width. Find the percentage error in calculating the area of the rectangle. (3mks)

5. Solve the simultaneous equations below. (4mks)



6. Solve the quadratic equation by completing the square method. (3 marks)



7. The sum of two numbers is 23 and their difference is 3. Find the sum of the squares of the two numbers. (***3marks)***

8. Solve the equation (***3marks)***



**9.** Use the method of completing the square to solve **(3 marks)**



**10.** The radius and height of a cylindrical Kentank rounded to 1 cm are 105 cm and 300 cm respectively. Calculate the percentage error in its volume. **(3 marks)**

**11.** Calculate all the values of x between -180° and +180° which satisfy the equation 6 cos (x − 30)° = −3 **(3 marks)**

12. Solve for x and hence list the integral values of x. (3mks)



13. A rectangle has a length of 14.6cm and a width of 6.70 cm. Find the percentage Error in calculating the area of the rectangle. (4mks)

14. Solve the simultaneous equations: (4mks)



**15.** A bus left Kitale at 8.00 a.m. and travelled towards Lodwar at an average speed of 80 km/h. At 8.30 a.m a car left Lodwar towards Kitale at an average speed of 120km/h. Given that the distance between Kitale and Lodwar is 400km.Calculate the time the two vehicles met. (3 mks)

**16**. Janice, a fruit vendor obtained a total of Kshs. 6144 from her sales of oranges on Saturday at Kshs. 8.00 each. She had bought 560 more oranges to add to what had remained on Friday where she had sold 240 more oranges than on Thursday. She had sold 750 oranges on Thursday. Calculate the total number of oranges Janice had bought on Thursday. (4 mks)

**17.** Factorise Completely:- **x4 – 2x2y2 + y4** (3 mks)

**18.** Solve for **y** given that **y** is acute and sin (3y – 500) – cos (2y + 100) = 0 (3 mks)