**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ADM NO: \_\_\_\_\_\_\_\_\_\_\_\_CLASS:\_\_\_\_\_\_\_\_\_\_**

**DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

MARKS HERE

**MATHEMATICS FORM 2**

**TERM 3, 2023**

**INSTRUCTIONS: (Answer all the question in Section A & any two in section B)**

**TIME: (1H 30 Min)**

**SECTION A**

1. Without using a mathematical table or calculator solve the following. (3mks)

3√0.729 x 409.6

0.1728

1. Three bells are programmed to ring after an interval of 15 minutes, 25 minutes and 50 minutes. If they all rang together at 6:45am, when will they next ring together? (3mks)
2. Solve 28x = 512 (2mks)
3. Solve the inequality and represent the solution on a number line

4 - 5x -11 (2mks)

1. Find the equation of a line passing through point (2,3) and is perpendicular to (y=3x-1) (3mks)
2. In the figure below, lines AB AND LM are parallel. Find angle X, Y and Z. (3mks)

Y

Z

83O

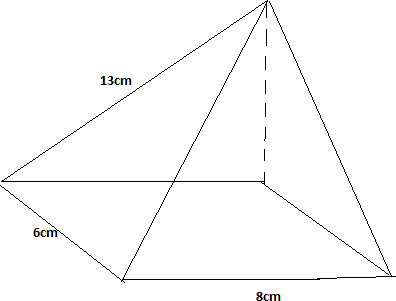
X

1300

1. Solve the following quadratic equation. (2mks)

5x2 – 21x + 4

1. Calculate surface area of the rectangular based pyramid below. (4mks)



1. From a window 25m above a street, the angle of elevation of the top of a wall on the opposite side is 150. If the angle of depression of the base of the wall from the window is 350 find:
2. The width of the street. (2mks)
3. The height of the wall on the opposite side. (2mks)
4. a) Solve the inequalities 2x-5>11 and 3+2x13, giving the answer as combined inequality (3mks)
5. List the integral values of x that satisfy the combined inequality in (a) above (1mk)

**SECTION B**

1. Three towns P,Q and R are such that, P is on a bearing of 1200 and 20km from Q. Town R is on a bearing of 2200 and 12km from P.
   1. Using a scale of 1cm to 2km, draw and locate the position of the three towns (3mks)
   2. Measure;
      1. The distance between Q and R in Kilometres. (2mk)
      2. The bearing of P from R. (1mk)
      3. The bearing of R from Q. (1mk)
      4. Calculate the area bounded by PQR. (3mks)
2. Makau made a journey of 700km partly by train and partly by bus. He started his journey at 8:00 am by train which travelled at 50km/h. After alighting from the train which travelled 50km/h. After alighting from the train, he took a lunch break of 30 minutes. He then continued his journey by bus which travelled at 75km/h. The whole journey took 11¼ hours.

a) Determine;

1. The distance travelled by bus (4mks)
2. The time Makau started travelling by bus (3mks)

b) The bus developed a puncture after travelling 187.5km. It took him 15 minutes to replace the wheel. Find the timed taken to complete the remaining part of the journey (3mks)

1. A Rhombus has its vertices as PQRS. The co-ordinates of the vertex P and Q of the rhombus are P(-1, 3) and Q(2, 4). The diagonal QS and PR meet at point M. Given that the equation of the line PR is y = x + 4.
2. Find the equation of the diagonal QS. (1 mark)
3. Find the co-ordinates of the mid-point M of QS. (2 marks)
4. Find the co-ordinates of the points R and S. (4 marks)

d) Calculate the length of diagonal PR. (3 marks)