**Name: ………………………………………………….. Class: ……..…..............................................**

**Date: ……………………………………………… Adm No: ……………………………………..........**

**OPENER EXAMS**

**TERM THREE 2023**

**FORM THREE MATHEMATICS**

1. Evaluate (3 marks)
2. Express as a mixed number. (3 marks)
3. Find the reciprocal of correct to 4 significant figures, hence evaluate. (3 marks)
4. A Kenyan trader bought goods from Japan worth 6 900 000 Japanese yen. A custom duty of 10% was charged on the value of the goods on their arrival in Kenya. Using the exchange rate below, calculate the duty paid in Kenya shillings.

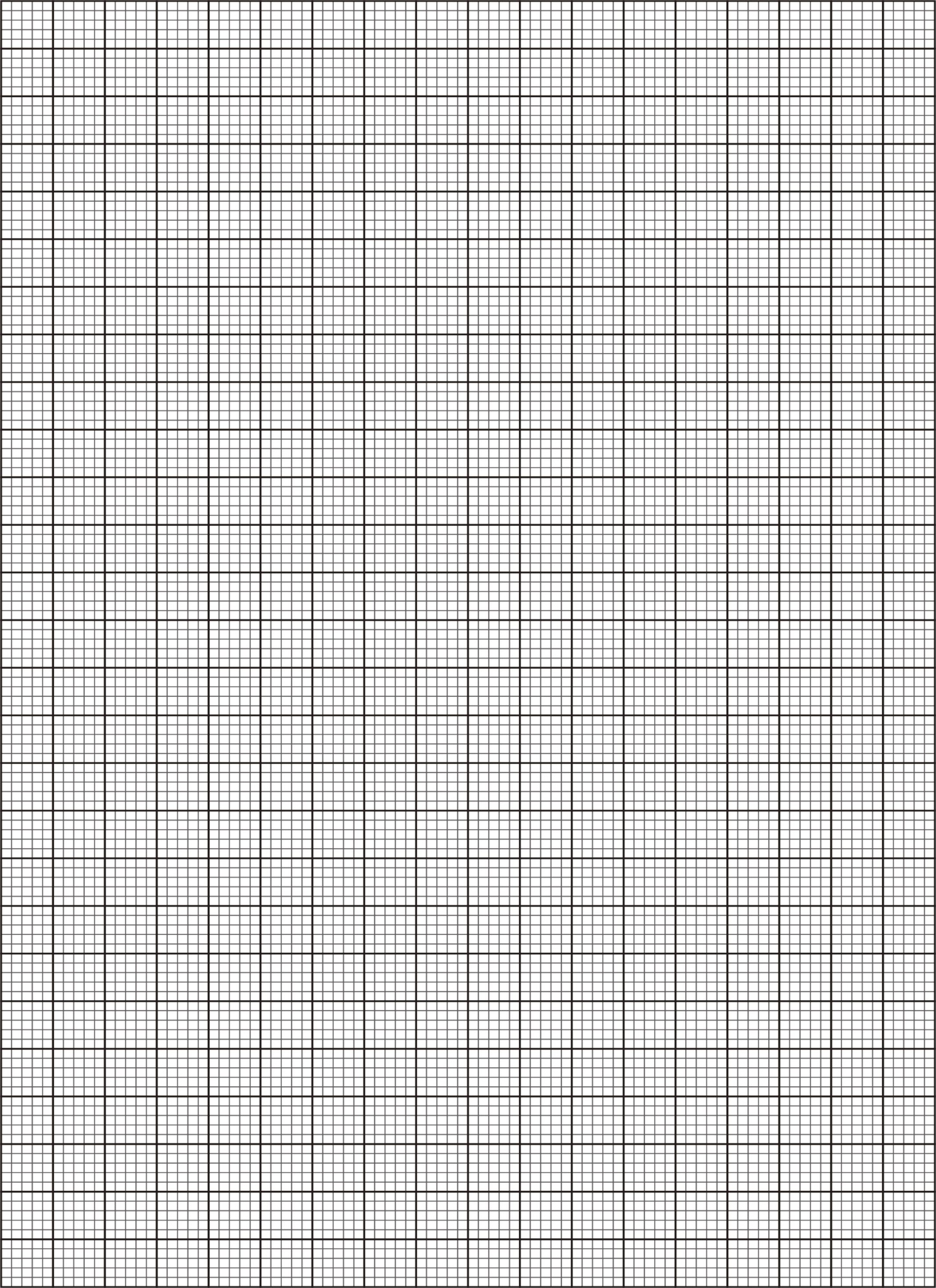
1 US dollar = 115 Japanese yens

1 US dollar = 75 Kenya shillings (3 marks)

1. Use the prime factors of 1764 and 2744 to evaluate (3 marks)
2. The volumes of two similar solids cylinders are in the ratio 8:27. If the area of the curved surface of the larger cylinder is 1440cm2, find the area of the curved surface area of the smaller cylinder. (4 marks)
3. A flag pole was erected 7.5m from the foot of a tree on the same horizontal level. The tree is 2.8 m high. The angle of elevation of the top of the flag pole from the top of the tree is 300. Determine the height of the flag pole correct to 1 decimal place. (3 marks)
4. Solve the inequality and represent the solution on a number line. (3 marks)
5. Given that and evaluate (3 marks)
6. The mean of a set of n numbers is 18. When another number 3 is added to the set, the mean changes to 17. Find n. (3 marks)
7. A solid hemisphere of radius 7.7cm has a mass of 2.5kg. Find the mass in grams of a solid sphere, radius 8.4cm, if they are made of the same material. (3 marks)
8. Simplify the expression. (3 marks)
9. The sum of the exterior angles of a pentagon is while the sum of its interior angles is. Find the values of x and y. (3 marks)

1. Shadrack made a loss of 10% after selling his laptop at sh 27 000. What percentage profit would he have made had he sold the laptop at sh 37 500. (3 marks)
2. A cyclist rode round a roundabout thrice. He covers a distance of 1320m. What is the area of the roundabout? (3 marks)
3. Using the grid below solve the simultaneous equations below.

(3 marks)

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1. (a) Find , the inverse of (2 marks)
2. In the first term of a certain year, a mixed school bought 60 pairs of girls’ socks and 90 pairs of boys’ socks for a total of sh 14 100. In the second term of the same year, the school bought 30 pairs of girls’ socks and 50 pairs of boys’ socks for a total of sh 7 600.
3. Form a matrix equation that represents the above information. (1 mark)
4. Use the matrix to find the price of a pair of each type of socks. (4 marks)
5. In the third term of the same year, the supplier gave a discount of 10% on each pair of girls’ socks and a discount of 20% on each pair of boys’ socks. If the school bought 25 pairs of girls’ socks and 40 pairs of boys’ socks in that term, find the percentage discount on the cost of all the socks that were bought. (3 marks)