

**TEST SCHOOL**  
**121/2 MATHEMATICS**  
**Paper 2**  
**Form 1 End Term Examination**

*Time: 2 ½ Hours*

Name: ..... Adm No: .....  
 School: ..... Class: .....  
 Signature: ..... Date: .....

**INSTRUCTIONS TO CANDIDATES**

- (a) Write your name and index number in the spaces provided at the top of this page.
- (b) Write your school name, sign and write the date of the examination in the spaces provided above.
- (c) This paper consists of **Two** sections: **Section I** and **Section II**.
- (d) Answer **ALL** questions in Section I and any **five questions** from Section II.
- (e) Marks may be given for correct working, relevant points, and clear presentation.
- (f) Non-programmable silent electronic calculators may be used where necessary.
- (g) KNEC Mathematical Tables may be used.
- (h) This paper consists of **7 printed pages**.
- (i) Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.
- (j) Candidates should answer the questions in English.

**For Examiner's Use Only**

**SECTION I**

|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |       |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|-------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Total |
|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |       |

**SECTION II**

|    |    |    |    |    |    |    |       |                |
|----|----|----|----|----|----|----|-------|----------------|
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | Total | Grand<br>Total |
|    |    |    |    |    |    |    |       |                |

## SECTION I

1. Write each of the following numbers in standard form:

(a) 0.00037

(b) 3450000

2. Convert each of the following from standard form to ordinary numbers:

(a)  $4.2 \times 10^5$

(b)  $6.0 \times 10^{-3}$

3. Evaluate  $(3.0 \times 10^5) \times (2.0 \times 10^3)$  and leave your answer in standard form.

4. Find the reciprocal of 0.25.

5. A number is written as  $4.8 \times 10^6$ . Write it in ordinary form. Then divide this number by 2000 and express the result in standard form.

**6.** Find the area of a rectangle whose length is  $(2x + 3)$  cm and width is  $(x - 1)$  cm. If  $x = 5$ , find the area.

**7.** Divide 240 sweets between Ann and Bob in the ratio 3:5. How many sweets does each get?

**8.** A car travels 240 km in 3 hours. What is its speed in km/h? If it continues at the same speed, how far will it travel in 5 hours?

**9.** Simplify:  $3\frac{1}{4} - 1\frac{3}{8} + 2\frac{1}{2}$ . Express your answer as a mixed number.

**10.** A bag contains 60 marbles. The ratio of red marbles to blue marbles is 2 : 3. How many red marbles are there?

**11.** A rectangle has length 12 cm and width 8 cm. Find the area and perimeter of the rectangle. Hence find the side length of a square that has the same area as the rectangle.

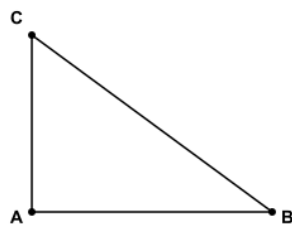
**12.** The sum of three consecutive integers is 72. Find the three integers.

**13.** A cyclist travels at 15 km/h for 2 hours, then at 10 km/h for 1 hour. Calculate the total distance travelled and the average speed for the whole journey.

**14.** Simplify:  $4(2x - 3) - 3(5x + 2)$ .

**15.** The scale of a map is 1 : 50000. Two towns are 8 cm apart on the map. What is the actual distance between the towns in kilometres?

**16.** The angles of a triangle are in the ratio 2 : 3 : 4. Find the size of each angle.



## SECTION II

*Answer any five questions from this section.*

**17.** ; ; Convert 0.625 to a fraction in simplest form; [10 marks]

Evaluate:  $(-3) \times 4 + 12 \div (-2)$

Simplify:  $\frac{3}{4} - \frac{1}{2} + \frac{5}{8}$

Convert 0.625 to a fraction in simplest form.

A shopkeeper had 120 kg of sugar. He sold  $\frac{2}{5}$  of it in the morning and  $\frac{1}{3}$  of the remainder in the afternoon.  
How many kilograms were left?

**18.** ; ; If  $x = 2$  and  $y = -3$ , find the value of  $2x^2 - 3xy + y^2$ ; [10 marks]

Simplify:  $3a + 2b - a + 3b$

Expand:  $2(3x - 4y) + 3(x + 2y)$

If  $x = 2$  and  $y = -3$ , find the value of  $2x^2 - 3xy + y^2$ .

The sum of two consecutive integers is 45. Find the integers.

**19.** Divide 240 in the ratio 3:5; ; ; [10 marks]

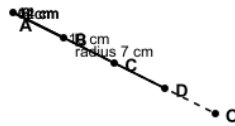
Divide 240 in the ratio 3:5.

If 5 men can complete a job in 12 days, how many men are needed to complete the same job in 4 days?

A recipe requires 2 cups of flour and 3 cups of sugar. If 8 cups of flour are used, how much sugar is needed?

The price of an item is increased from Ksh 200 to Ksh 250. Find the percentage increase.

**20.** Find the perimeter of a rectangle with length 12 cm and width 8 cm; Find the area of a triangle with base 10 cm and height 6 cm; A square has an area of  $64 \text{ cm}^2$ . Find its perimeter; [10 marks]



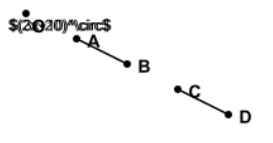
Find the perimeter of a rectangle with length 12 cm and width 8 cm.

Find the area of a triangle with base 10 cm and height 6 cm.

A square has an area of  $64 \text{ cm}^2$ . Find its perimeter.

The figure below shows a shape consisting of a rectangle and a semicircle. The rectangle is 14 cm long and 10 cm wide. The semicircle has diameter 14 cm. Find the area of the shape. (Take  $\pi = \frac{22}{7}$ )

**21.** ; The angles of a triangle are in the ratio 2:3:5. Find the smallest angle; [10 marks]

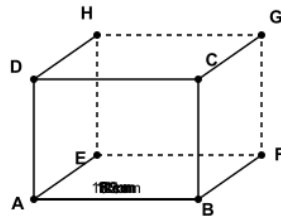


In the diagram below, two lines intersect. Find the value of  $x$ . [Diagram: intersecting lines with angles  $(2x + 10)^\circ$  and  $(3x - 20)^\circ$ ]

The angles of a triangle are in the ratio 2:3:5. Find the smallest angle.

In the diagram below,  $AB$  is a straight line. Find angle  $y$ . [Diagram: A---C---B, with D above line, angle  $ACD = 110^\circ$ , angle  $DCE = y$ , angle  $ECB = 70^\circ$ ]

22. Find the volume of a cuboid with length 8 cm, width 5 cm, and height 3 cm; ; ; [10 marks]



Find the volume of a cuboid with length 8 cm, width 5 cm, and height 3 cm.

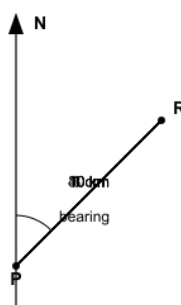
A cylindrical container has a radius of 7 cm and a height of 14 cm. Find its volume. (Take  $\pi = \frac{22}{7}$ )

A rectangular tank measures 2 m by 1.5 m by 1.2 m. How many litres of water can it hold? (1 m<sup>3</sup> = 1000 litres)



The surface area of a cube is  $150 \text{ cm}^2$ . Find the length of its edges.

23. A map has a scale of 1:50000. Two towns are 8 cm apart on the map. Find the actual distance in kilometres;  
The bearing of point A from point B is  $060^\circ$ . Draw a diagram showing this bearing; [10 marks]



A map has a scale of 1:50000. Two towns are 8 cm apart on the map. Find the actual distance in kilometres.

The bearing of point A from point B is  $060^\circ$ . Draw a diagram showing this bearing.

A ship sails from port P on a bearing of  $120^\circ$  for 40 km. Using a scale of 1 cm to 10 km, construct the path and then the ship changes course to a bearing of  $030^\circ$  for 30 km. Determine by measurement the distance

PR from the starting point to the final point.

# 121/2 MATHEMATICS MARKING SCHEME

## Form 1 Paper 2

### SECTION I (50 marks)

1. Write each of the following numbers in standard form:

(3 marks)

(a)  $0.00037 = 3.7 \times 10^{\blacksquare\blacksquare}$  (B1) [1]

(b)  $3450000 = 3.45 \times 10^{\blacksquare}$  (