**KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT**

 **GRADE 9**

 **903: MATHEMATICS**

**Time: 2 HOURS**

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_.**

**CANDIDATES ASSESSMENT NUMBER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**SCHOOL: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SCHOOL CODE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_.**

**INSTRUCTIONS TO CANDIDATES**

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|  |  |
| 1. | Write your **name** and **assessment number** in the spaces provided above. |
| 2. | Write the **name** and **code of your school** in the spaces provided above. |
| 3. | **Sign** and write the **date** of the assessment in the spaces provided above. |
| 4. | This question paper consists of **TWO** sections: **A** and **B.** |  |
| 5. | Answer ALL the questions in section A on the separate **ANSWER SHEET** provided. |
| 6. | Answer ALL the questions in section B in the spaces provided in this **QUESTION PER**. |
| 7. | Show all the workings in section B in the spaces provided . |  |
| 8. | Non-programmable calculators may be used, except where stated otherwise. |
| 9. | Give non-exact numerical answers, correct to 3 significant figures, and one decimal place for angles in degrees, unless |
|  | a different level of accuracy is specified in the question. |  |
|  |  |

**For official use only**

**SECTION A**: (20 Marks) *Choose the correct answer*

1. What is the place value of **7** in the number **5,789,342**?
A) Seven hundred thousand
B) Seventy thousand
C) Seven million
D) Seven hundred

1. Convert **3,456,789** to words.
A) Three million, four hundred sixty-seven thousand, eight hundred nine
B) Three million, four hundred fifty-six thousand, seven hundred eighty-nine
C) Three billion, four hundred fifty-six million, seven hundred eighty-nine thousand
D) Thirty-four million, five hundred sixty-seven thousand, eight hundred ninety
2. Find the LCM of **12 and 18**.
A) 24 B) 36
C) 48 D) 72
3. Simplify: **(4/5 ÷ 2/3) × (3/4)**
A) 3/5
B) 2/3
C) 6/5
D) 5/6
4. Solve for **x**: **3x - 5 = 7**
A) 4 B) 2
C) 5 D) 3
5. The area of a circle with a radius of **7 cm** is:
A) 154 cm²
B) 49 cm²
C) 21 cm²
D) 44 cm²

 **WORKING SPACE**

1. A car travels **240 km** in **4 hours**. What is its speed?
A) 30 km/h B) 40 km/h
C) 50 km/h D) 60 km/h

1. Solve: **2x + 3 < 9**
A) x < 2 B) x > 3
C) x < 3 D) x > 2
2. The determinant of the matrix **A = 3 2 is?**

 **5 4**

A) 7 B) -7 C) 2 D) -2

1. The matrix **B = 1 3**

 **2 4**

is multiplied by **2**, what is the result?

A) 2 6

4 8

B) 1 6

 2 8

C) 2 3

 4 8

D) 3 9

 6 12

**WORKING SPACE**

1. Convert $\frac{7}{8}$ to a decimal.
A) 0.75 B) 0.875
C) 0.78 D) 0.8
2. Solve for **x** in **2x² = 50**.
A) 5 B) ±5 C) 10 D) ±10
3. The reciprocal of $\frac{3}{7}$ is:
A) $\frac{7}{3}$ B) $\frac{3}{7}$ C) $-\frac{3}{7}$ D) $-\frac{7}{3}$
4. A triangle has sides **6 cm, 8 cm, and 10 cm**. Which type of triangle is it?
A) Right-angled B) Equilateral
C) Isosceles D) Scalene
5. If **5x = 60**, find **x**.
A) 15 B) 10
C) 12 D) 20
6. The mode of the numbers **4, 7, 9, 4, 10, 7, 4** is:
A) 4 B) 7
C) 9 D) 10
7. A line parallel to the **x-axis** has an equation of the form:
A) y = constant B) x = constant
C) y = mx + c D) xy = constant
8. Find the **square root** of **289**.
A) 19 B) 17 C) 15 D) 21
9. Convert **2.5 km** to meters.
A) 25 m B) 250 m
C) 2,500 m D) 25,000 m
10. **The interior angles of a quadrilateral add up to:**
A) 90°
B) 180°
C) 270°
D) 360°

**WORKING SPACE**



##  ****SECTION B: (80 Marks)****

1. (a) Write **8,405,678** in words. (2 marks)

(b) Find the **LCM** and **GCD** of **18 and 24**. (4 marks)

(c) Convert **0.75** to a fraction and simplify. (2 marks)

(d) Round **456,789** to the nearest **ten thousand**. (2 marks)

1. (a) Solve for **x** in **5x - 3 = 2x + 9**. (3 marks)

(b) Factorize: **x² - 7x + 12**. (3 marks)

(c) Solve the inequality: **3x + 4 ≥ 10**. (2 marks)

(d) Find the value of **y** if **2y + 5 = 15**. (2 marks)

1. (a) Find the determinant of **M = 4 5** (3 marks)

 **2 3**

(b) Find **M⁻¹**, the inverse of matrix **M**. (4 marks)

(c) Given **A = 2 3** and **B = 1 2** , compute **AB**. (3 marks)

 **1 4 0 3**

1. (a) The perimeter of a rectangle is **36 cm**. If its width is **8 cm**, find its length. (3 marks)

(b) A tank holds **500 litres**. Convert this to **m³**. (3 marks)

(c) A triangle has sides **5 cm, 12 cm, and 13 cm**. Show it is a right-angled triangle. (4 marks)

1. (a) Find the **mean** of the numbers **10, 15, 20, 25, 30**. (2 marks)

(b) The probability of picking a red ball from a bag is **3/8**. What is the probability of not picking a red ball? (2 marks)

(c) A pie chart shows students' favorite sports: **40% football, 25% basketball, 20% volleyball, and the rest hockey**. Find the angle for **hockey**. (2 marks)

(d) A die is rolled. What is the probability of getting a prime number? (2 marks)

(e) Find the median of **4, 7, 9, 12, 15**. (2 marks)

### ****ANSWERS****

**SECTION A: MULTIPLE CHOICE QUESTIONS (1-20) – 20 Marks**

*(Choose the correct answer. Each question carries 1 mark.)*

1. A
2. B
3. B
4. C
5. A
6. A
7. B
8. C
9. B
10. A
11. B
12. B
13. A
14. A
15. C
16. A
17. A
18. B
19. C
20. D
21. (a) **Eight million, four hundred five thousand, six hundred seventy-eight**.
(b) LCM = **72**, GCD = **6**.
(c) 0.75 = **3/4**.
(d) **460,000**.
22. (a) x = **4**.
(b) **(x - 3)(x - 4)**.
(c) x ≥ **2**.
(d) y = **5**.
23. (a) Det(M) = **2**.

(b) M⁻¹ = 3 −5

 −2 4

1. (c) AB = 2 13

 11 4

1. (a) Length = **10 cm**.
(b) **0.5 m³**.
(c) **Right triangle (5² + 12² = 13² → 25 + 144 = 169)**.
2. (a) Mean = **20**.
(b) Probability = $\frac{5}{8}$.
(c) Hockey angle = **15°**.
(d) Prime numbers on a die = {2, 3, 5} → P = $\frac{3}{6}$ **=** $\frac{1}{2}.$
(e) Median = **9**.