**KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT**

**EXAM 2025**

**MATHEMATICS (903)**

**NAME:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

**STREAM:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
**DATE:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INSTRUCTIONS**

1. Write your name, school, and stream in the spaces provided above.
2. Answer **ALL** the questions in this booklet.
3. This question paper consists of **two sections: A and B**.
4. Answer **all questions** in Section A in the table provided.
5. Answer **all questions** in Section B in the spaces provided after each question.
6. Show all your workings in Section B.
7. **Do NOT remove any page** from this question paper.
8. Answer the questions in **English**.

### **SECTION A**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Qn** | **01** | **02** | **03** | **04** | **05** | **06** | **07** | **08** | **09** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** |
| Maximum score |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Learner’s score |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### **SECTION B**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Qn** | **21** | **22** | **23** | **24** | **25** | **26** | **27** | **28** | **29** | **30** | **31** | **32** | **33** | **34** | **35** | **36** |
| Maximum score |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Learner’s score |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**LEARNER'S SCORE**

|  |  |  |
| --- | --- | --- |
| Section | Scores | Total |
| A (Out of 20) |  |  |
| B (Out of 80) |  |  |

## ****SECTION A:** (20 Marks): Answer all questions**

1. **What is the place value of 6 in the number 3,462,189?**  
   A) Hundreds  
   B) Thousands  
   C) Ten-thousands  
   D) Hundred-thousands
2. **Write 8,013,025 in words.**  
   A) Eight million, thirteen thousand, twenty-five  
   B) Eight million, one hundred three thousand, twenty-five  
   C) Eight million, thirteen hundred twenty-five  
   D) Eight hundred thirteen thousand, twenty-five
3. **Convert 2,049 to Roman numerals.**  
   A) MMXLIX B) MMCDIX  
   C) MMLIX D) MMIVIX
4. **Round 846,573,921 to the nearest hundred million.**  
   A) 800,000,000 B) 900,000,000  
   C) 850,000,000 D) 840,000,000
5. **What is the least common multiple (LCM) of 9 and 12?**  
   A) 18 B) 36  
   C) 72 D) 48
6. **Which of the following is NOT a prime number?**  
   A) 13 B) 19  
   C) 21 D) 29
7. **Simplify: 12 ÷ (4 – 2) × 3**  
   A) 18 B) 9  
   C) 6 D) 12
8. **Find the reciprocal of 5/8.**  
   A) B) C) D)
9. **Find the missing number in the sequence:**

**2, 4, 8, 16, \_\_, 64**

A) 24 B) 32  
C) 48 D) 56

1. **Solve for x: 3x + 7 = 2x + 12**  
   A) 4 B) 5  
   C) 7 D) 9
2. **A triangular field has a base of 20 m and a height of 15 m. What is its area?**  
   A) 150 m²  
   B) 225 m²  
   C) 200 m²  
   D) 300 m²
3. **A shopkeeper bought a TV for Ksh 25,000 and sold it at Ksh 28,750. What was the percentage profit?**  
   A) 12% B) 15%  
   C) 25% D) 30%
4. **Find the circumference of a circle with a radius of 7 cm (π = 3.14).**  
   A) 21.98 cm B) 43.96 cm  
   C) 31.42 cm D) 50 cm
5. **Solve: 5/6 × 3/4 ÷ 2/5**  
   A) 5/8 B) 10/9  
   C) 15/16  
   D) 20/36
6. **Find the mean of 12, 18, 22, 14, and 16.**  
   A) 16 B) 18  
   C) 20 D) 22
7. **What is the probability of picking a red marble from a bag containing 3 red, 5 blue, and 2 green marbles?**  
   A) 1/5 B) 3/10  
   C) 3/9 D) 1/3
8. **Solve: (4³ ÷ 2²) + 5**  
   A) 13 B) 14  
   C) 17 D) 21
9. **Find the gradient of a line passing through points (3,4) and (6,10).**  
   A) 2  
   B) 3  
   C) 4  
   D) 5
10. **Find the surface area of a cube with a side of 5 cm.**  
    A) 75 cm²  
    B) 100 cm²  
    C) 150 cm²  
    D) 125 cm²
11. **If the exchange rate is 1 USD = Ksh 145, how much is 50 USD in Ksh?**  
    A) 6,500  
    B) 7,250  
    C) 7,750  
    D) 8,000

BCN

XVMNVBMNNB

NB,CC,B,CHB,VHN,N

CGMBNMNBMNB,MNB

NNNNBVB

SDVCXVBCBVCNVBMNBCN

XVMNVBMNNB

NB,CC,B,CHB,VHN,N

CGMBNMNBMNB,MNB

NNNNBVB

SDVCXVBCBVCNVBMNBCN

XVMNVBMNNB

NB,CC,B,CHB,VHN,N

CGMBNMNBMNB,MNB

NNNNBVB

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

(Answer all questions. Show your working.)

1. **Write 9,608,214 in words.** (2 marks)
2. **Find the LCM and GCD of 24 and 36.** (4 marks)
3. **Round 752,684,519 to the nearest hundred million.** (2 marks)
4. **Write 2025 in Roman numerals.** (2 marks)
5. **Convert 0.625 to a fraction in its simplest form.** (2 marks)
6. **Simplify: (3/4 + 5/6) ÷ (2/3).** (4 marks)
7. **Round 3.8769 to 2 decimal places.** (2 marks)
8. **Find the square root of 225 using prime factorization.** (2 marks)
9. **Solve for x: 4x - 5 = 3x + 7.** (3 marks)
10. **Factorize: x² - 9x + 20.** (3 marks)
11. **Solve for x in the inequality: 2x + 3 > 7.** (2 marks)
12. **Find the value of y if 2y + 5 = 15.** (2 marks)
13. **Find the area of a parallelogram with base 10 cm and height 8 cm.** (2 marks)
14. **A tank holds 250 litres. Convert this to cubic meters.** (2 marks)
15. **Construct a triangle with sides 6 cm, 8 cm, and 10 cm.** (3 marks)
16. **Find the volume of a cylinder with radius 4 cm and height 10 cm. (π = 3.14).** (3 marks)
17. **Find the median of 4, 9, 11, 15, 21.** (2 marks)
18. **Draw a bar graph to represent the data: 3, 5, 8, 6, 7.** (4 marks)
19. **Find the probability of tossing a coin and getting heads.** (2 marks)
20. **A school has 200 students. 60 play football. Find the percentage of students who play football.** (2 marks)

## ****ANSWERS****

1. **B) Thousands** (Place value of 6 in 3,462,189 is 6,000)
2. **A) Eight million, thirteen thousand, twenty-five**
3. **B) MMCDIX** (2049 = 2000 + 40 + 9 = MM + CD + IX)
4. **B) 900,000,000** (846,573,921 rounds up to 900 million)
5. **B) 36** (LCM of 9 and 12: 9 → 9, 18, 27, 36 | 12 → 12, 24, 36 → First common multiple is 36)
6. **C) 21** (Not prime, as 21 = 3 × 7)
7. **A) 18** (12 ÷ (4 – 2) × 3 = 12 ÷ 2 × 3 = 6 × 3 = 18)
8. **A) 8/5** (Reciprocal of 5/8 = 8/5)
9. **B) 32** (Pattern: ×2 → 2, 4, 8, 16, **32**, 64)
10. **B) 5** (Solving 3x + 7 = 2x + 12 → x = 5)
11. **A) 150 m²** (Area of triangle = ½ × base × height = ½ × 20 × 15 = 150 m²)
12. **B) 15%** (Profit % = (Profit / Cost Price) × 100 = (3,750 / 25,000) × 100 = 15%)
13. **C) 31.42 cm** (Circumference = 2πr = 2 × 3.14 × 7 = 31.42 cm)
14. **B) 10/9** (5/6 × 3/4 ÷ 2/5 = 15/24 ÷ 2/5 = 15/24 × 5/2 = 75/48 = 10/9)
15. **A) 16** (Mean = (12 + 18 + 22 + 14 + 16) ÷ 5 = 82 ÷ 5 = 16.4 ≈ 16)
16. **B) 3/10** (Probability of red = 3/(3+5+2) = 3/10)
17. **B) 14** (4³ ÷ 2² + 5 = 64 ÷ 4 + 5 = 16 + 5 = 14)
18. **A) 2** (Gradient = (10 - 4) / (6 - 3) = 6/3 = 2)
19. **C) 150 cm²** (Surface Area of cube = 6a² = 6 × 5² = 150 cm²)
20. **C) 7,750** (50 × 145 = 7,250)
21. **Write 9,608,214 in words.**
    1. **Answer:** Nine million, six hundred eight thousand, two hundred fourteen (2 marks)
22. **Find the LCM and GCD of 24 and 36.**
    1. Prime factorization:
       1. 24 = 2³ × 3
       2. 36 = 2² × 3²
    2. **LCM** = 2³ × 3² = **72**
    3. **GCD** = 2² × 3 = **12** (4 marks)
23. **Round 752,684,519 to the nearest hundred million.**
    1. **Answer:** 800,000,000 (2 marks)
24. **Write 2025 in Roman numerals.**
    1. **Answer:** MMXXV (2 marks)
25. **Convert 0.625 to a fraction in simplest form.**
    1. **Answer:** 0.625 = 625/1000 = **5/8** (2 marks)
26. **Simplify: (3/4 + 5/6) ÷ (2/3).**
    1. **Solution:**
       1. LCM of 4 and 6 = 12 → (9/12 + 10/12) ÷ (2/3)
       2. = (19/12) ÷ (2/3)
       3. = (19/12) × (3/2)
       4. = 57/24 = **19/8** (4 marks)
27. **Round 3.8769 to 2 decimal places.**
    1. **Answer:** **3.88** (2 marks)
28. **Find the square root of 225 using prime factorization.**
    1. **Solution:** 225 = 3² × 5² → √225 = 3 × 5 = **15** (2 marks)
29. **Solve for x: 4x - 5 = 3x + 7**
    1. **Solution:**
       1. 4x - 3x = 7 + 5
       2. x = **12** (3 marks)
30. **Factorize: x² - 9x + 20.**

* **Solution:** (x - 5)(x - 4) (3 marks)

1. **Solve for x in the inequality: 2x + 3 > 7.**

* **Solution:**
  + 2x > 4 → x > **2** (2 marks)

1. **Find the value of y if 2y + 5 = 15.**

* **Solution:**
  + 2y = 10 → y = **5** (2 marks)

1. **Find the area of a parallelogram with base 10 cm and height 8 cm.**

* **Solution:** A = b × h = 10 × 8 = **80 cm²** (2 marks)

1. **A tank holds 250 litres. Convert this to cubic meters.**

* **Solution:** 1 m³ = 1000 L → 250 L = **0.25 m³** (2 marks)

1. **Construct a triangle with sides 6 cm, 8 cm, and 10 cm.**

* **Solution:** Pythagoras theorem confirms right triangle. Use a ruler and protractor. (3 marks)

1. **Find the volume of a cylinder with radius 4 cm and height 10 cm.**

* **Solution:**
  + V = πr²h = 3.14 × 4² × 10 = **502.4 cm³** (3 marks)

1. **Find the median of 4, 9, 11, 15, 21.**

* **Solution:** Middle number = **11** (2 marks)

1. **Draw a bar graph to represent the data: 3, 5, 8, 6, 7.**

* **Solution:** Properly labeled bar graph. (4 marks)

1. **Find the probability of tossing a coin and getting heads.**

* **Solution:** 1/2 (2 marks)

1. **A school has 200 students. 60 play football. Find the percentage of students who play football.**

* **Solution:** (60/200) × 100 = **30%** (2 marks)