# Mathematics Examination

## Section A: Multiple Choice Questions

1. 1. Convert 32 (base 8) to base ten.

a. 23

b. 16

c. 14

d. 15

1. 2. Reduce 1/48 to its lowest term.

a. 1/7

b. 1/6

c. 3/7

d. 1/9

1. 3. Write 12:44 in Roman numerals.

a. MCDXCIV

b. MCCXCIV

c. MCCXCIV

d. MCCXCIV

1. 4. What is the place value of 8 in 58772?

a. 8 thousand

b. 8 hundred

c. 8 tens

d. 8 units

1. 5. Express 0.7568 in standard form.

a. 7.568 × 10⁻¹

b. 7.5 × 10²

c. 7.5 × 10³

d. 7.5 × 10⁻⁴

1. 6. Solve the inequality (5x - 8 ≥ 12).

a. x < 4

b. x > 4

c. x ≥ 4

d. x ≤ 4

1. 7. Find the coefficient of a in the expression (2a - 1)(a + x).

a. 3

b. -2

c. 2

d. -3

1. 8. A farmer divides 240 cattle among his two children in the ratio 6:4. How many cattle does each get?

a. 140, 100

b. 144, 96

c. 96, 144

d. 100, 140

1. 9. Factorize (x² + 5x + 6).

a. (x - 3)(x - 2)

b. (x + 1)(x + 6)

c. (x + 3)(x + 2)

d. (x - 1)(x - 6)

1. 10. Simplify 4½ + (1¾ - ½).

a. 3½

b. 1¾

c. 1½

d. 8¼

1. 11. Make V the subject of the formula: 1/f = 1/v + 1/u.

a. V = (f - v)/(u - f)

b. V = (f - u)/(u + f)

1. 12. Find the product of 0.4, -0.3, and -2.

a. 24

b. 21.4

c. 0.24

d. 0.24

1. 13. Express 17/25 as a decimal.

a. 0.68

b. 0.78

c. 0.8

d. 0.83

1. 14. Correct 0.07 + 16 to 2 significant figures.

a. 0.07

b. 0.08

c. 0.070

d. 0.0071

1. 15. Find the range of values for which 7 - 2x < 19.

a. x > 6

b. x > -6

c. x < 6

d. x < -6

1. 16. The sum of interior angles of an octagon is:

a. 14°10'

b. 12°60'

c. 10°80'

d. 90°0'

1. 17. The area of a triangle is 18 cm² and its base is 6 cm. Calculate the height.

a. 2 cm

b. 4 cm

c. 5 cm

d. 6 cm

1. 18. The next term in the sequence 1, 4, 9, 16, ... is:

a. 19

b. 20

c. 21

d. 25

1. 19. A fair six-sided die is rolled. Find the probability of obtaining a number greater than 6.

a. 13

b. 0

c. 0

d. -1

1. 20. If x varies directly with y, and x = 5 when y = 20, find y when x = 12.

a. 28

b. 32

c. 42

d. 48

1. 21. Solve the simultaneous equations:  
   2a - b = 4  
   a + b = 5
2. 22. A triangle with no equal sides is called:

a. Equilateral triangle

b. Isosceles triangle

c. Scalene triangle

d. Right angle triangle

1. 23. The prime numbers between 40 and 60 are:

a. 41, 43, 49

b. 42, 44, 47

c. 41, 45, 49

d. 44, 43, 47

1. 24. Three angles meet at a point. Two of them are 82° and 71°. Find the size of the third angle.

a. 243°

b. 247°

c. 197°

d. 98°

## Section C: Theory Questions

1. 25. Make V the subject of the formula in the expression 1/t = 1/u + 1/v.  
   Find the value of V when u = 20 and f = 16.
2. 26. P is inversely proportional to the square root of T. Given P = 8 when T = 25, find:  
   - The formula connecting P and T.  
   - P when T = 100.  
   - T when P = 64.
3. 27. Solve the simultaneous linear equations using substitution method:  
   2x + 3y = 5  
   3x + y = 4
4. 28. Evaluate:  
   7x - 35x - 27  
   (-7) × (-9)
5. 29. A bag contains 4 red, 3 blue, and 5 green balls. A ball is picked at random. What is the probability that the ball is green?
6. 30. Find the simple interest on ₦12,000 for 7½ years at 6% per annum. What will be the total amount?
7. 31. Three books and two pencils have a mass of 1300 g. Find the mass of one book and four pencils.
8. 32. Evaluate 197² - 20².