



Myfuture CBC Revision

essential mathematics - Grade 10

Question Paper

1. Which of the following best describes the set of real numbers?

- A. Only whole numbers and their negatives
- B. All rational and irrational numbers
- C. Only fractions and decimals
- D. Only integers and natural numbers

2. $0.142857142857\dots$ (repeating) is equal to which fraction?

- A. $\frac{1}{7}$
- B. $\frac{1}{6}$
- C. $\frac{1}{8}$
- D. $\frac{2}{7}$

3. What is the mode of the data 2, 2, 3, 4, 2, 5?

- A. 2
- B. 3
- C. 5
- D. 4

4. Which variable is qualitative (categorical)?

- A. Marks scored out of 100
- B. Height in centimetres
- C. Colour of school ties
- D. Number of books owned

5. A trader offers 12.5% discount on a marked price. If the selling price after discount is Ksh 1,750, what was the marked price?

- A. Ksh 1,800
- B. Ksh 2,100
- C. Ksh 2,000
- D. Ksh 1,900

6. A shopkeeper buys goods for Ksh 15,000 and sells them for Ksh 18,000. What is his profit percentage?

- A. 30%
- B. 25%
- C. 15%
- D. 20%

7. Rationalise the denominator of $\frac{5}{2}$ and give the result in simplest form.

- A. $\frac{2}{5}$
- B. $\frac{52}{2}$
- C. $\frac{5}{22}$
- D. 52

8. A customer buys goods worth Ksh 2,500. VAT at 16% is added. What is the total amount to be paid?

- A. Ksh 2,860
- B. Ksh 2,750
- C. Ksh 2,900
- D. Ksh 2,800

9. Which fraction equals $0.222\dots$ (repeating)?

- A. $\frac{1}{4}$
- B. $\frac{22}{100}$
- C. $\frac{1}{5}$
- D. $\frac{2}{9}$

10. From a standard 52-card deck, what is the probability of drawing a red card?

- A. $\frac{1}{4}$
- B. $\frac{26}{13}$
- C. $\frac{1}{2}$
- D. $\frac{13}{52}$

11. A cashier computes a 5% commission on sales. If sales amount to Ksh 48,000, how much is the commission?

- A. Ksh 2,400
- B. Ksh 2,200
- C. Ksh 2,000
- D. Ksh 2,800

12. What is the formula for the arithmetic mean of n observations x_1, x_2, \dots, x_n ?

- A. The middle value after ordering the x_i
- B. $(x_1 + x_2 + \dots + x_n) \div n$
- C. The most frequently occurring x_i
- D. $x_1 \times x_2 \times \dots \times x_n$

13. Order the numbers from smallest to largest: -1, -0.75, 0.2, 0.5.

- A. -1, 0.2, -0.75, 0.5
- B. -0.75, -1, 0.2, 0.5
- C. 0.5, 0.2, -0.75, -1
- D. -1, -0.75, 0.2, 0.5

14. A fair six-sided die is rolled. What is the probability of getting a prime number?

- A. $2/3$
- B. $1/2$
- C. $1/6$
- D. $1/3$

15. Which graph is appropriate for continuous data grouped into class intervals (e.g., heights)?

- A. Pie chart
- B. Dot plot
- C. Histogram
- D. Bar chart

16. An article sold at Ksh 2,160 gives a loss of 10%. What should be the selling price to make a 20% profit on the cost price?

- A. Ksh 2,400
- B. Ksh 3,000
- C. Ksh 2,592
- D. Ksh 2,880

17. Which chart is best to show how a total number of students is split into different subjects as percentages?

- A. Pie chart
- B. Line graph
- C. Scatter plot
- D. Histogram

18. A loan of Ksh 4,500 attracts simple interest at 6% per annum. What is the interest for 2 years 6 months?

- A. Ksh 675
- B. Ksh 675.0
- C. Ksh 675.00
- D. Ksh 675.00

19. Which description matches stratified sampling?

- A. Divide the population into groups (strata) and take a random sample from each group
- B. Go to one class and ask all students there
- C. Pick every 10th student on the school register
- D. Survey whoever is nearby and willing to answer

20. A raffle has tickets numbered 1 to 100. One ticket is drawn at random. What is the probability the number is divisible by 5?

- A. $1/5$
- B. $5/100$
- C. $1/20$
- D. $1/10$

21. Which statement is true about real numbers a and b with $a < b$?

- A. There are only finitely many real numbers between a and b
- B. There cannot be any integers between a and b
- C. There are no rational numbers between a and b
- D. There exists at least one irrational number between a and b

22. Which measure of central tendency is best for a heavily skewed distribution?

- A. Median
- B. Mode
- C. Range
- D. Mean

23. What is one main advantage of a stem-and-leaf diagram over a histogram?

- A. It removes all outliers automatically
- B. It retains the original data values
- C. It always uses equal class widths
- D. It shows percentage shares immediately

24. Which of the following is an example of primary data in a school survey?

- A. An article in a local newspaper summarising school performance
- B. Exam results from last year kept in the school office
- C. Answers collected directly from Form 3 students by the teacher
- D. Enrollment numbers published by the Ministry of Education

25. Which of the following is an irrational number?

- A. 4.25
- B. (3.1415926535...)
- C. $9/3$
- D. $7/14$

26. Convert 2.45 to a fraction in simplest form.

- A. $49/20$
- B. $245/1000$
- C. $2\frac{4}{5}$
- D. $24/5$

27. An item is marked at Ksh 5,000. The shop offers a 10% discount. What is the selling price after the discount?

- A. Ksh 4,500
- B. Ksh 4,750
- C. Ksh 4,900
- D. Ksh 4,000

28. A fair spinner has 8 equal sectors numbered 1 to 8. What is the probability it lands on a number divisible by 4?

- A. $1/2$
- B. $1/4$
- C. $1/8$
- D. $1/3$

29. Which type of number is 2?

- A. Natural number
- B. Rational
- C. Integer
- D. Irrational

30. A set of scores ranges from 12 to 55. If you want about 8 equal classes for a frequency table, what is a suitable class width?

- A. 6
- B. 7
- C. 5
- D. 4

31. A trader bought goods for Ksh 9,200 and sold them at a 15% profit. He then gave a customer a 10% discount on the selling price. What is the final price paid by the customer?

- A. Ksh 10,000
- B. Ksh 9,500
- C. Ksh 10,580
- D. Ksh 9,828

32. If the probability of rain tomorrow is 0.3, what is the probability that it will not rain?

- A. 0.5
- B. 1.3
- C. 0.3
- D. 0.7

33. Which number is an integer?

- A. 0.75
- B. $\frac{3}{2}$
- C. -7
- D. 2

34. A trader marks up the cost price by 25%. If the cost price is Ksh 2,400, what is the marked price?

- A. Ksh 3,000
- B. Ksh 2,600
- C. Ksh 2,900
- D. Ksh 2,700

35. Which set is NOT closed under subtraction?

- A. Real numbers
- B. Integers
- C. Natural numbers (1, 2, 3, ...)
- D. Rational numbers

36. In a class of 30 pupils, 12 are girls. What is the relative frequency of girls in the class?

- A. 40
- B. 2.5
- C. 0.4
- D. 0.12

37. A bag contains 5 red, 3 blue and 2 green marbles. If one marble is taken at random, what is the probability it is green?

- A. $\frac{3}{10}$
- B. $\frac{5}{10}$
- C. $\frac{1}{10}$
- D. $\frac{2}{10}$

38. Which decimal expansion indicates an irrational number?

- A. 3.14159265358979... (digits do not repeat)
- B. 0.625 (terminating)
- C. 0.272727... (repeating)
- D. 0.454545... (repeating)

39. Which scatter plot pattern indicates a positive correlation between two variables (e.g., height and shoe size)?

- A. Points form a vertical band
- B. Points form a horizontal band
- C. Points tend to rise from left to right
- D. Points tend to fall from left to right

40. A bag contains 3 red balls and 2 blue balls. What is the probability of drawing a red ball at random?

- A. $\frac{1}{5}$
- B. $\frac{1}{2}$
- C. $\frac{3}{5}$
- D. $\frac{2}{5}$

41. If the weather forecast says a 0.3 chance of rain, what is this probability as a percentage?

- A. 0.3%
- B. 3%
- C. 30%
- D. 300%

42. A bag has 4 red and 6 black marbles. You draw a marble, replace it, then draw again. What is the probability both draws are red?

- A. $\frac{4}{10}$
- B. $\frac{1}{5}$
- C. $\frac{4}{25}$
- D. $\frac{2}{15}$

43. From a standard 52-card deck, what is the probability of NOT drawing an ace?

- A. $\frac{3}{13}$
- B. $\frac{1}{13}$
- C. $\frac{12}{13}$
- D. $\frac{4}{52}$

44. A fair die is rolled. What is the probability of NOT getting a 6?

- A. $\frac{5}{6}$
- B. $\frac{1}{6}$
- C. $\frac{1}{2}$
- D. $\frac{6}{6}$

45. Which quantity is a discrete variable?

- A. Height of a student in cm
- B. Temperature in the classroom
- C. Number of students in a classroom
- D. Time taken to run 100 m

46. A retailer sells an article at a loss of 12%. If the selling price is Ksh 6,600, what was the cost price?

- A. Ksh 7,950
- B. Ksh 7,200
- C. Ksh 7,425
- D. Ksh 7,500

47. What fraction is equal to 0.333... (repeating)?

- A. $\frac{2}{3}$
- B. $\frac{1}{3}$
- C. $\frac{3}{10}$
- D. $\frac{1}{10}$

48. A businessman borrows Ksh 60,000 at a simple interest rate of 8% per annum for 3 years. What is the simple interest due?

- A. Ksh 4,800
- B. Ksh 9,600
- C. Ksh 14,400
- D. Ksh 18,000

49. What is the median of the marks 12, 15, 20, 22?

- A. 17.5
- B. 15
- C. 20
- D. 18.5

50. Two fair coins are tossed. What is the probability of getting two heads?

- A. $\frac{1}{4}$
- B. $\frac{1}{2}$
- C. $\frac{1}{8}$
- D. $\frac{3}{4}$

