Myfuture CBC Revision

essential mathematics - Grade 10

Question Paper

1. Which type of number is 2?

A. Irrational

B. Natural number

C. Integer

D. Rational

2. What is the range of the numbers 5, 8, 12, 20?

A. 12

B. 15

C. 20

D. 5

3. Express 50 in simplest surd form.

A. 25

B. 105

C. 252

D. 52

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

A. There exists at least one irrational number between a and b

B. There cannot be any integers between a and b

C. There are only finitely many real numbers between a and b

D. There are no rational numbers between a and b

5. 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

6. 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. 1/20

B. 5/100

C. 1/5

D. 1/10

7. 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 2,800

D. Ksh 2,000

8. 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. 5

B. 6

C. 4

D. 7

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

A. 13/52

B. 1/4

C. 1/2

D. 26/13

10. A letter is chosen at random from the word 'KENYA'. What is the probability the letter is a vowel?

A. 2/6

B. 3/5

C. 1/5

D. 2/5

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

A. 1/4

B. 1/8

C. 3/4

D. 1/2

12. A jar has 12 biscuits: 5 chocolate and 7 plain. One biscuit is chosen at random. What is the probability it is chocolate?

A. 5/12

B. 7/12

C. 1/2

D. 5/7

13. A wholesaler gives a trade discount of 15% on Ksh 20,000 order. How much does the buyer pay?

A. Ksh 17,000

B. Ksh 16,500

C. Ksh 16,800

D. Ksh 17,500

14. Two fair dice are rolled. What is the probability their sum is 7?

A. 1/9

B. 1/3

C. 1/6

D. 1/12

15. What is the relationship between variance and standard deviation?

A. Variance is standard deviation multiplied by the mean

B. Standard deviation is the square root of the variance

C. Variance is the square root of the standard deviation

D. They are always equal

16. A fair six-sided die is rolled. What is the probability of getting an even number?

A. 1/6

B. 2/3

C. 1/3

D. 1/2

17. 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. 4/10

B. 1/5

C. 4/25

D. 2/15

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

A. Points tend to fall from left to right

B. Points tend to rise from left to right

C. Points form a vertical band

D. Points form a horizontal band

19. A merchant sold goods for Ksh 7,350 with a gain of 10%. What was the cost price?

A. Ksh 6,500

B. Ksh 6,900

C. Ksh 6,700

D. Ksh 6,681.82

20. In a test, 4 students scored 10, 6 scored 15 and 10 scored 20. What is the mean score?

A. 16.5

B. 15.5

C. 17.0

D. 15.0

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

A. 0.12

B. 0.4

C. 2.5

D. 40

22. If the cumulative frequency for scores 50 is 120, what does this mean?

A. 120 students scored exactly 50

B. 120 students scored more than 50

C. 120 students scored 50 or less

D. There are 120 score values

23. Which of the following is an irrational number?

A. 4.25

B. 7/14

C. 9/3

D. (3.1415926535...)

24. Rationalise the denominator of 5/2 and give the result in simplest form.

A. 2/5

B. 52/2

C. 5/22

D. 52

25. Express 0.375 as a fraction in simplest form.

A. 1/4

B. 37/100

C. 75/200

D. 3/8

26. A trader declares a 12% profit on cost. If his cost is Ksh 25,000, what is the selling price?

A. Ksh 26,500

B. Ksh 28,000

C. Ksh 27,500

D. Ksh 29,000

27. If the product of two real numbers is zero, what can be concluded?

A. At least one of the numbers is zero

B. Both numbers must be negative

C. Both numbers must be non-zero

D. Both numbers must be positive

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

A. Ksh 4,900

B. Ksh 4,750

C. Ksh 4,500

D. Ksh 4,000

29. Which measure of central tendency is most appropriate to summarise the favourite subject (e.g., Maths, Science, English) of students?

A. Median

B. Standard deviation

C. Mean

D. Mode

30. A student performed an experiment 20 times and got the event success 7 times. What is the experimental probability of success?

A. 7/13

B. 7/20

C. 3/20

D. 1/2

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

A. Ksh 2,700

B. Ksh 2,900

C. Ksh 2,600

D. Ksh 3,000

32. Which set is NOT closed under subtraction?

A. Rational numbers

B. Integers

C. Natural numbers (1, 2, 3, ...)

D. Real numbers

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

A. Dot plot

B. Histogram

C. Pie chart

D. Bar chart

34. Find the absolute value of 3/4.

A. 3/4

B. 3/4

C. 1.75

D. 0

35. A trader pays Ksh 2,400 for goods and sells them at Ksh 3,120. What is the profit percent?

A. 25%

B. 24%

C. 30%

D. 20%

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

A. 1/2

B. 6/6

C. 5/6

D. 1/6

37. Which inequality is true?

A. -0.8 > -0.4

B. -1/3 > -2/3

C. -2/3 > -1/3

D. 0.5 < -0.2

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

A. Only whole numbers and their negatives

B. Only integers and natural numbers

C. Only fractions and decimals

D. All rational and irrational numbers

39. Which number is an integer?

A. 2

B. -7

C. 3/2

D. 0.75

40. Which of the following has a non-terminating, non-repeating decimal expansion?

A. 7/20

B. 10

C. 3/8

D. 0.125

41. What is the decimal form of 7/20?

A. 0.035

B. 0.7

C. 0.35

D. 0.75

42. What is the formula for the arithmetic mean of n observations x1, x2, ..., xn?

A. x1 × x2 × ... × xn

B. The most frequently occurring xi

C. (x1 + x2 + ... + xn) ÷ n

D. The middle value after ordering the xi

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

A. 30%

B. 0.3%

C. 3%

D. 300%

44. 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 9,828

B. Ksh 9,500

C. Ksh 10,580

D. Ksh 10,000

45. Which decimal expansion indicates an irrational number?

A. 3.14159265358979... (digits do not repeat)

B. 0.272727... (repeating)

C. 0.625 (terminating)

D. 0.454545... (repeating)

46. A borrower repays Ksh 2,600 after 3 years on a loan of Ksh 2,000. What was the simple interest rate per annum?

A. 12%

B. 9%

C. 10%

D. 11%

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

A. 0.5, 0.2, -0.75, -1

B. -0.75, -1, 0.2, 0.5

C. -1, 0.2, -0.75, 0.5

D. -1, -0.75, 0.2, 0.5

48. A salesman gets a commission of 3% on all sales. If his commission in a month was Ksh 3,600, what value of goods did he sell?

A. Ksh 120,000

B. Ksh 150,000

C. Ksh 90,000

D. Ksh 100,000

49. Calculate -5 + 3.

A. 8

B. 2

C. -2

D. -8

50. 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 7,425

B. Ksh 7,500

C. Ksh 7,200

D. Ksh 7,950