



Myfuture CBC Revision

essential mathematics - Grade 10

Question Paper

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

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

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

- A. $1/2$
- B. $6/6$
- C. $5/6$
- D. $1/6$

3. $0.142857142857\dots$ (repeating) is equal to which fraction?

- A. $1/6$
- B. $1/8$
- C. $2/7$
- D. $1/7$

4. 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. $3/10$
- B. $5/10$
- C. $1/10$
- D. $2/10$

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

- A. $2/5$
- B. $2/6$
- C. $3/5$
- D. $1/5$

6. What fraction is equal to $0.333\dots$ (repeating)?

- A. $1/3$
- B. $1/10$
- C. $2/3$
- D. $3/10$

7. 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. $x_1 \times x_2 \times \dots \times x_n$

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

- A. 24%
- B. 20%
- C. 30%
- D. 25%

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

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

10. If Ksh 8,000 is invested at 5% simple interest per annum, how much total amount will there be after 4 years?

- A. Ksh 9,200
- B. Ksh 8,400
- C. Ksh 10,000
- D. Ksh 9,600

11. Which sampling method is most likely to produce a biased sample?

- A. Only asking students in the maths club for opinions on all clubs
- B. Dividing students by form and sampling from each form
- C. Randomly selecting student names from the whole school list
- D. Choosing every 5th student from a complete class list

12. A bank discounts a bill of exchange of face value Ksh 50,000 for 4 months at a simple discount rate of 9% per annum. What is the banker's discount?

- A. Ksh 1,250
- B. Ksh 1,500
- C. Ksh 1,000
- D. Ksh 1,800

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

- A. Ksh 16,500
- B. Ksh 17,500
- C. Ksh 16,800
- D. Ksh 17,000

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

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

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

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

16. A wholesaler sells an article at Ksh 4,400 after allowing two successive discounts of 10% and 5% on the marked price. What was the marked price?

- A. Ksh 5,200
- B. Ksh 5,440
- C. Ksh 5,000
- D. Ksh 5,600

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

- A. Both numbers must be negative
- B. Both numbers must be non-zero
- C. Both numbers must be positive
- D. At least one of the numbers is zero

18. A fair spinner has 10 equal sections numbered 1 to 10. What is the probability it lands on a number less than 6?

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

19. 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 9,600
- B. Ksh 4,800
- C. Ksh 14,400
- D. Ksh 18,000

20. A lender charges simple interest and receives Ksh 1,125 interest on a loan of Ksh 5,000 over 3 years. What is the annual rate (%)?

- A. 6%
- B. 5%
- C. 8%
- D. 7.5%

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

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

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

- A. Median
- B. Mean
- C. Standard deviation
- D. Mode

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

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

24. 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 2,880
- B. Ksh 3,000
- C. Ksh 2,400
- D. Ksh 2,592

25. In a class of 20 students, 6 wear shoe size 7, 8 wear size 6 and 6 wear size 5. If a student is chosen at random, what is the probability they wear size 6?

- A. $\frac{1}{2}$
- B. $\frac{6}{20}$
- C. $\frac{2}{5}$
- D. $\frac{8}{12}$

26. Which set is NOT closed under subtraction?

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

27. If a fair die is rolled 40 times, approximately how many times would you expect a six to occur?

- A. 2.5
- B. 4.0
- C. 6.7
- D. 10.0

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

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

29. Two fair dice are rolled. What is the probability of getting at least one six?

- A. $\frac{1}{2}$
- B. $\frac{1}{3}$
- C. $\frac{11}{36}$
- D. $\frac{1}{6}$

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

- A. 120 students scored 50 or less
- B. There are 120 score values
- C. 120 students scored more than 50
- D. 120 students scored exactly 50

31. 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. $\frac{1}{5}$
- B. $\frac{1}{10}$
- C. $\frac{5}{100}$
- D. $\frac{1}{20}$

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

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

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

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

34. Express 50 in simplest surd form.

- A. 25
- B. 105
- C. 252
- D. 52

35. A bag has 4 red and 6 black marbles. Two marbles are drawn without replacement. What is the probability both are red?

- A. $\frac{1}{5}$
- B. $\frac{3}{10}$
- C. $\frac{2}{15}$
- D. $\frac{4}{10}$

36. An item costs Ksh 1,800 including a 20% profit on cost. What was the original cost price?

- A. Ksh 1,440
- B. Ksh 1,620
- C. Ksh 1,600
- D. Ksh 1,500

37. Two fair coins are tossed. What is the probability of getting at least one head?

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

38. In a class of 50 students, 15 scored above 80 marks. If one student is chosen at random, what is the probability they scored above 80?

- A. $\frac{3}{10}$
- B. $\frac{1}{3}$
- C. $\frac{7}{10}$
- D. $\frac{15}{100}$

39. 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 2,100
- B. Ksh 1,800
- C. Ksh 1,900
- D. Ksh 2,000

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

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

41. Calculate $-5 + 3$.

- A. -8
- B. -2
- C. 2
- D. 8

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

- A. $\frac{7}{20}$
- B. $\frac{7}{13}$
- C. $\frac{3}{20}$
- D. $\frac{1}{2}$

43. Which type of number is 2?

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

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

- A. Ksh 6,681.82
- B. Ksh 6,900
- C. Ksh 6,500
- D. Ksh 6,700

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

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

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

- A. 15
- B. 5
- C. 12
- D. 20

47. 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. $\frac{13}{52}$

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

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

49. Convert 2.45 to a fraction in simplest form.

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

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