

ADDIS ABABA CITY ADMINISTRATION EDUCATIONAL BUREAU
MODEL EXAMINATION FOR GRADE EIGHT
MATHEMATICS, TAHISAS 2015/ JANUARY 2023

NUMBER OF QUESTIONS: 40

TIME ALLOWED: - 1 HOUR

GENERAL DIRECTIONS

THIS BOOKLET CONTAINS **MATHEMATICS** EXAMINATION. IN THIS EXAMINATION, THERE ARE A TOTAL OF **40 MULTIPLE CHOICE QUESTIONS**. CAREFULLY SELECT THE BEST ANSWER AND **BLACKEN** ONLY THE LETTER OF YOUR CHOICE ON THE SEPARATE ANSWER SHEET PROVIDED. FOLLOW THE INSTRUCTIONS ON THE ANSWER SHEET AND THE EXAMINATION PAPER CAREFULLY. USE ONLY **PENCIL** TO MARK YOUR ANSWERS. YOUR ANSWER MARK SHOULD BE **HEAVY AND DARK**, COVERING THE ANSWER SPACE COMPLETELY. PLEASE ERASE ALL UNNECESSARY MARKS COMPLETELY FROM YOUR ANSWER SHEET.

YOU ARE ALLOWED TO WORK ON THE EXAM FOR **1 HOUR**. WHEN TIME IS CALLED, YOU MUST IMMEDIATELY STOP WORKING, PUT YOUR PENCIL DOWN, AND WAIT FOR FURTHER INSTRUCTIONS.

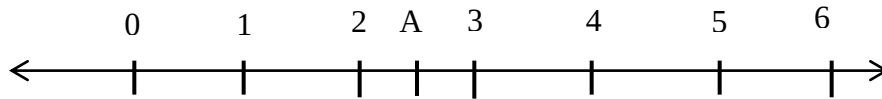
ANY FORM OF CHEATING OR AN ATTEMPT TO CHEAT IN THE EXAMINATION WILL RESULT IN AN AUTOMATIC DISMISSAL FROM THE EXAMINATION HALL AND CANCELLATION OF YOUR SCORE (S).

PLEASE MAKE SURE THAT YOU HAVE WRITTEN ALL THE REQUIRED INFORMATION ON THE ANSWER SHEET BEFORE YOU START TO WORK ON THE EXAMINATION.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

CHOOSE THE CORRECT ANSWER FROM THE GIVEN OPTIONS AND BLACKEN THE LETTER OF YOUR CHOICE ON THE ANSWER SHEET PROVIDED.

1. Consider the number line below



Which one of the following **CAN'T BE** the value of A?

- A. $\frac{7}{2}$ B. $\frac{13}{5}$ C. $\frac{5}{2}$ D. $\frac{7}{3}$
2. Which one of the following is TRUE?
- A. Every rational number is an integer
 B. Every integer is a whole number
 C. Every rational number is a natural number
 D. Every natural number is a whole number
3. If $x = 2$ and $y = -3$, what is the value of $|-x - 2| + |-2y + 3x|$?
- A. 8 B. 13 C. 14 D. 16
4. Which one of the following is **NOT TRUE**?
- A. $2\frac{3}{4} < 3\frac{2}{7}$ C. $\left|\frac{3}{2}\right| > -\frac{2}{3}$
 B. $0.38 < \frac{1}{3}$ D. $\frac{11}{2} > \frac{5}{6}$
5. Which of the following rational numbers are written in ascending order?
- A. $\frac{3}{5}, \frac{1}{6}, \frac{3}{7}, \frac{1}{7}, \frac{4}{6}$ C. $\frac{4}{6}, \frac{3}{5}, \frac{1}{6}, \frac{3}{7}, \frac{1}{7}$
 B. $\frac{1}{7}, \frac{1}{6}, \frac{3}{7}, \frac{3}{5}, \frac{4}{6}$ D. $\frac{3}{5}, \frac{1}{6}, \frac{1}{7}, \frac{4}{6}, \frac{3}{7}$

6. Abel's first semester result of his five subjects are given below

Amharic	English	Mathematics	General Science	Citizenship
82.6	73.9	91.3	78.12	83.6

Which one of the following is correct order of his mark in descending order?

- A. Mathematics, Citizenship, Amharic, General science, English.
 - B. Amharic, General science, Citizenship, Mathematics, English.
 - C. Mathematics, English, General Science, Citizenship, Amharic.
 - D. Amharic, Mathematics, English, General science, Citizenship.
7. For any three rational numbers a, b and c, which one of the following is

TRUE?

- A. $(a + b) - c = a + (b + c)$
 - C. $a + b = b - c$
 - B. $a + b = b + a$
 - D. $(a + b) - C = (a + b) + c$
8. What is the value of $2\frac{1}{2} + 3\frac{1}{3} + 4\frac{1}{4}$?
- A. $12\frac{1}{10}$
 - B. $10\frac{1}{12}$
 - C. $12\frac{1}{2}$
 - D. $10\frac{1}{2}$
9. Lemlem's average mark in the class is 3.68% less than that of Kebede's average mark. If Kebede's average mark is 83.1%, what is Lemlem's average mark?
- A. 80.38%
 - B. 86.78%
 - C. 79.42%
 - D. 76.53%
10. What is the value of $-3.62 - 4.12$?
- A. 7.74
 - B. -0.5
 - C. -7.74
 - D. 0.5

11. What is the value of $2\frac{1}{3} \times 4\frac{3}{5}$?

- A. $15\frac{11}{10}$ B. $11\frac{11}{15}$ C. $12\frac{11}{10}$ D. $10\frac{11}{15}$

12. What is 75% of $\frac{4}{5}$?

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

13. If we divided $17/8$ for $3/2$ what result can we get?

- A. $1\frac{5}{12}$ B. $1\frac{7}{10}$ C. $1\frac{1}{10}$ D. $1\frac{7}{12}$

14. For any two rational numbers $\frac{a}{b}$ and $\frac{c}{d}$ where $a, b, c, d \neq 0$ which one is always correct?

A. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{c} \times \frac{b}{d}$ C. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{c}{d}$

B. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{c} \times \frac{d}{b}$ D. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{c}{d}$

15. Abel has 300 birr. If he gave $\frac{1}{3}$, $\frac{1}{5}$ and $\frac{1}{6}$ of his money for his three friends respectively, how much money he left?

- A. 64Birr B. 90 Birr C. 100 Birr D. 150 Birr

16. Robel deposited 10,000 Birr in a Bank with simple interest rate of 10% per annum, when will his money be doubled?

- A. in 10 years B. in 15 years C. in 20 years D. in 30 years

17. Which of the following numbers is **NOT** a perfect square?

- A. $\frac{100}{256}$ B. $\frac{27}{36}$ C. $\frac{81}{225}$ D. $\frac{225}{100}$

18. Which one of the following is TRUE?

- A. $100 < (9.2)^2 < 121$ C. $16 < (4.3)^2 < 25$
B. $64 < (7.5)^2 < 81$ D. $25 < (6.2)^2 < 36$

19. If $(3.25)^2 = 10.5625$, then what is the value of 325^2 ?
- A. 105.625 B. 1,056,250 C. 105,625 D. 1,056.25
20. If the area of a square is 81 cm^2 , then what is the length of its side?
- A. 81cm B. 27cm C. 18cm D. 9cm
21. Which of the following numbers is paired with its square?
- A. 15 & 225 B. 9 & 36 C. 16 & 100 D. 4 & 64
22. Suppose $(2.13)^2 = 4.5369$, what is the exact value of $\sqrt{45,369}$?
- A. 0.213 B. 2.13 C. 21.3 D. 213
23. Which of the following numbers is a perfect cube?
- A. 224 B. 1 C. 196 D. 100
24. If the length of side of a cube is 10cm, then what is the volume of the cube?
- A. 125cm^3 C. $1,000\text{cm}^3$
B. 100cm^3 D. $10,000\text{cm}^3$
25. Which of the following numbers is paired with its cube root?
- A. 20,736 & 12 C. 3,375 & 15
B. 1,000 & 100 D. 16 & 4
26. Which one of the following is **TRUE**?
- A. The cube root of a negative number is negative.
B. The cube root of a positive number is negative.
C. The cube root of a negative number is positive.
D. The cube root of zero is positive.
27. In the expression $y = \sqrt[3]{x}$, then x is said to be
- A. Radical B. Radicand C. Index D. cube root

28. One gallon of ink can paint an area of 6m^2 . How much gallon of ink is needed to paint a box in the shape of a cube whose side is 4m ?

- A. 160 gallon of ink C. 26 gallon of ink
B. 24 gallon of ink D. 16 gallon of ink

29. Alemayehu has a garden in the shape of a square. If he enlarges its side by 3 meters, the area of the new garden increased by 63m^2 . What is the area of the first garden?

- A. 81 m^2 B. 144 m^2 C. 63m^2 D. 225m^2

30. Which of the following coordinates is found in the second quadrant?

- A. (2,4) B. (-2,4) C. (2,-4) D. (-2,-4)

31. Which one of the following line is a vertical line?

- A. $x = 5$ B. $y = 3$ C. $x + 2y = 12$ D. $x - y = 0$

32. Which one of the following point **DO NOT** lie on the line $x + 2y = 10$?

- A. (2,4) B. (0,5) C. (1,10) D. (10,0)

33. Which one of the following line passes through the origin?

- A. $x + 2y = 4$ B. $x + y = 4$ C. $y = 6x$ D. $x + 2y = 1$

34. If (0,b) lies on the line $x + 2y = 4$, then what is the value of b?

- A. 6 B. 5 C. 4 D. 2

35. Which pair of linear inequalities are equivalent?

- A. $2x + 3 < 0$ & $x < 3$
B. $x + 3 > 12$ & $2x + 3 > 9$
C. $3x + 4 < 12$ & $x + 4 < 12$
D. $3x + 4 < 6$ & $6x < 4$

36. What is the solution set of $2x + 5 < 2(2x + 3) + 7$ in the set of rational numbers?

A. $x > -4, x \in Q$

C. $x > 4, x \in Q$

B. $x < -4, x \in Q$

D. $x < 4, x \in Q$

37. Which of the following inequality **HAS NO** solution in the set of natural numbers?

A. $2(x + 4) < 2x + 8$

C. $4(2+x) > 3x - 4$

B. $x > 4$

D. $2x + 12 > 21$

38. Abebe has 450,000 Birr and planned to buy a computer for his office. The computer he planned to buy costs 20,180 Birr each including tax and delivery. What is the maximum number of computers can he buy for his office?

A. 43

B. 34

C. 32

D. 22

39. Three years ago a father is 20 years older than his son, in 10 years' time the father is twice older than his son. What is the age of the son now?

A. 10 years

B. 12 years

C. 30 years

D. 36 years

40. Alemayehu can paint a whole house in 9 days and Eprem can paint the same house in 18 days. In how many days can they paint the house if they paint it together?

A. 4.5 days

B. 5.4 days

C. 6 days

D. 2 days