# HILLRANGE SECONDARY SCHOOL, ENUGU

ENTRANCE EXAMINATION INTO JS1 FOR 2023/2024 ACADEMIC SESSION

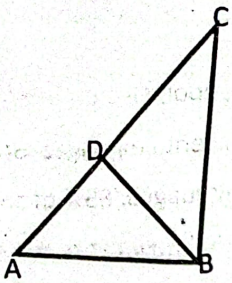
SUBJECT: Mathematics TIME: 60 minutes

NAME OF CANDIDATE:..... EXAM NO .....

INSTRUCTION: Attempt all the questions; circle the correct options.

1. Write in words 12 234 453 401
   A. Twelve billion, two hundred and thirty-four million, four hundred fifty-three thousand four hundred and one.
   B. Twelve million, two hundred and fifty-three thousand, four hundred and one.
   C. Twelve billion, two hundred and thirty-four million, four hundred fifty-three thousand four hundred and ten.
   D. Twelve billion, five hundred and thirty-four million, four hundred fifty-three thousand four hundred and one.
   E. Twelve trillion, two hundred and thirty-four million, four hundred fifty-three thousand four hundred and.
2. If the first common multiple of two numbers is 4, find the fifth common multiple.
   A. 10
   B. 8
   C. 12
   D. 16
   E. 20
3. Evaluate: $\frac{11}{22}+\frac{22}{44}-\frac{33}{66}=?$
   A. $\frac{1}{2}$
   B. 1
   C. $\frac{3}{2}$
   D. 2
   E. $\frac{5}{2}$
4. What is 215cm in metres?
   A. 21.5
   B. 2150
   C. 2.15
   D. 21500
   E. 21.05
5. Find the sum of the prime factors of 60.
   A. 5
   B. 7
   C. 8
   D. 10
   E. 12
6. Find the value of −20− (−100).
   A. 120
   B. 100
   C. 80
   D. −80
   E. −120
7. What is 402 thousandth in decimal fraction?
   A. 0.42
   B. 0.402
   C. 0.0402
   D. 0.0042
   E. 0.00402
8. How many seconds are there in 56hrs?
   A. 3360secs
   B. 33 600secs
   C. 201600secs
   D. 2 016secs
   E. 56secs
9. If numbers $a$ and $b$ are odd numbers, then which one of the following is even?
   A. $3a+2b$
   B. $a\times b+5$
   C. $a\times b$
   D. $a+b+1$
   E. $a\times a\times b$
10. If the sum of n natural numbers can be found using the formula $1+2+3+\ldots+n=\frac{n(n+1)}{2}$ then find $1+2+3+\ldots+21$
    A. 150
    B. 163
    C. 231
    D. 240
    E. 255

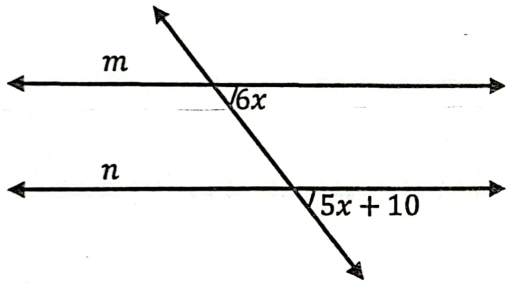
11. How many whole numbers are there between 2.09 and 15.3?
    A. 13
    B. 14
    C. 11
    D. 12
    E. 15
12. Which one of the following is false?
    A. $7\frac{1}{3} = 7 + \frac{1}{3}$
    B. $\frac{15}{37} > \frac{15}{33}$
    C. $5\frac{2}{3} > 5\frac{1}{3}$
    D. $\frac{5}{2} = 2\frac{1}{2}$
    E. $4 + 3 = 3 + 4$
13. How much grams of rice should we add to 1.35 kilogram of rice to get 2.5 kilogram rice?
    A. 300
    B. 1300
    C. 650
    D. 1150
    E. 150
14. Find the product of 31 and 24; then round the result to the nearest ten.
    A. 760
    B. 746
    C. 740
    D. 750
    E. 755
15. Evaluate $5 + (11 - 9)$
    A. 16
    B. 18
    C. 10
    D. 7
    E. 25
16. The HCF of two numbers is 15 and their LCM is 300. If one of the numbers is 60, the other is
    A. 50
    B. 75
    C. 65
    D. 100
    E. 80
17. Evaluate $1 + \frac{1}{10} + \frac{2}{100} + \frac{3}{1000} + \frac{4}{10000}$
    A. 11234
    B. 1.1234
    C. 112.34
    D. 1123.4
    E. 11.234
18. Which of the following is equivalent to 7.50pm in a 24hour clock?
    A. 12:00
    B. 16:10
    C. 19:50
    D. 07:50
    E. 07:25
19. Each interior angle of a regular pentagon is
    A. 120°
    B. 108°
    C. 110°
    D. 105°
    E. 135°
20. If the perimeter of a rectangle is 48cm and the length of one side is twice the other side, then find the area
    A. 128
    B. 98
    C. 72
    D. 100
    E. 142
21. Find the length of sides of a square, if the area of the square is 3 times bigger than the perimeter.
    A. 4
    B. 10
    C. 8
    D. 12
    E. 16
22. In the figure below, $BC = x + 1, CD = x, DA = x - 1, DB = 8cm$. If ADB is an equilateral triangle, then find the perimeter of triangle ABC.




A. 24
B. 35
C. 30
D. 27
E. 28

23. In a class there are 35 students. If the number of girls is 3 more than the number of boys, how many girls are there in the class?
A. 14
B. 16
C. 15
D. 25
E. 19

24. If lines m and n are parallel to each other, find the value of x.




A. 10
B. 100
C. 50
D. 30
E. 60

25. Nelson was born in 1994. What birthday did he have in 2003?
A. $10^{th}$ birthday
B. $8^{th}$ birthday
C. $7^{th}$ birthday
D. $9^{th}$ birthday
E. $12^{th}$ birthday

26. Find the sum of K and L in the sequence given. 2, 3, 5, 8, 12, K, L, 30, 38
A. 34
B. 36
C. 38
D. 40
E. 42

27. What will be the angle between the minute and hour hand of a clock at quarter past three?
A. 7.5°
B. 30°
C. 90°
D. 15°
E. 60°

28. Find the next letter A, D, G, J ?
A. K
B. L
C. M
D. N
E. O

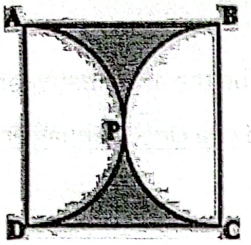
29. Maryam draws flowers of different colours. The first is Blue, the next is White, then Red, yellow, and again Blue, White, Red, Yellow and so on in the same order. What colour is the twenty-ninth flower?
A. Blue
B. White
C. Red
D. Black
E. Yellow

30. Find the next number in the given sequence $\frac{91}{4}$, $\frac{83}{8}, \frac{75}{16}, \frac{67}{32}, \ldots\ldots\ldots\ldots$
A. $\frac{59}{64}$
B. $\frac{62}{16}$
C. $\frac{75}{8}$

D. $\frac{59}{32}$

E. $\frac{62}{32}$

31. Find the area of the shaded region if ABCD is a square of side 14cm. (Take $\pi = \frac{22}{7}$)




A. 42

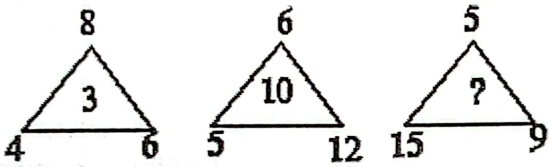
B. 30

C. 90

D. 15

E. 62

32. Find the missing number in the figure below.




A. 23

B. 25

C. 24

D. 26

E. 27

33. Find the number that can replace the question mark

I. (6 ▲ 3) ■ 5 = 10
II. (8 ■ 3) ▲ 4 = 6
III. (6 ▲ 2) ■ 7 = 21
IV. (7 ■ 4) ▲ 2 = ?

A. 28

B. 21

C. 14

D. 42

E. 36

34. In a certain school, all students know at least one of the ancient languages-Greek or Latin, some-both languages. 85% of the children know Greek and 75% know Latin. What percentage of the students know both languages?

A. 50%

B. 60%

C. 10%

D. 15%

E. 20%

35. Decrease 125 in the ratio 3:5

A. 75

B. 208.33

C. 125

D. 25

E. 50

36. How many vertices has a cube?

A. 12

B. 8

C. 6

D. 5

E. 3

37. If 2540 is increased by 15%, the result is

A. 381

B. 2159

C. 2525

D. 2921

E. 38100

38. What number does the Roman numeral MCMLXXIX represent?

A. 1,709

B. 1,799

C. 1,929

D. 1,979

E. 1,997

39. Find the square root of 196.

A. 12

B. 14
C. 15
D. 13
E. 16

40. Evaluate $\sqrt{2\frac{1}{4}}$.
A. $\frac{1}{3}$
B. $\frac{3}{5}$
C. $\frac{2}{3}$
D. $\frac{3}{4}$
E. $\frac{3}{2}$

41. Susan ran 3000 m in exactly 8 minutes. What was her average speed in meters per second?
A. 3.75
B. 6.25
C. 16.0
D. 37.5
E. 62.5

42. Which of the following plane figures does not have a line of symmetry?
A. Parallelogram
B. kite
C. Rectangle
D. Rhombus
E. Square

43. The number of minutes in 1 ½ hours is:
A. 30
B. 45
C. 65
D. 75
E. 90

44. During a radio programme lasting 1 hour, there were 18 minutes of talking; the rest was music. What percentage of the radio programme was music?
A. 30%
B. 42%
C. 70%
D. 18%
E. 60%

45. 45 minutes, expressed as a fraction of one hour, is:
A. $\frac{1}{60}$
B. $\frac{1}{45}$
C. $\frac{3}{4}$
D. $\frac{4}{5}$
E. $\frac{4}{3}$

46. A distance of 3km and 29m, expressed in metres is:
A. 3.029
B. 3.29
C. 329
D. 3029.
E. 3.290

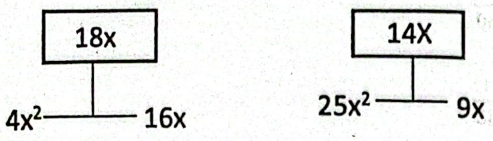
47. If $x = 3$, the value of $7x - 2x$ is:
A. 6
B. 8
C. 15
D. 21
E. 53

48. The value of $x$ that makes $\frac{24}{x} = 8$ true is:
A. 3
B. 8
C. 16
D. 32
E. 192

49. Which of the following is usually measured in metres?
A. the thickness of a pencil
B. the width of a book
C. the distance round a running track
D. the diameter of a coin
E. the distance from Enugu to Benin.

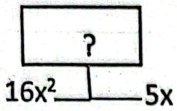
50. Find the product of the L.C.M and H.C.F of 9, 12 and 18
A. 6
B. 18
C. 36
D. 108
E. 216

SAMPLE



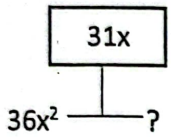

Use the sample above to answer questions 51 and 52.

51.



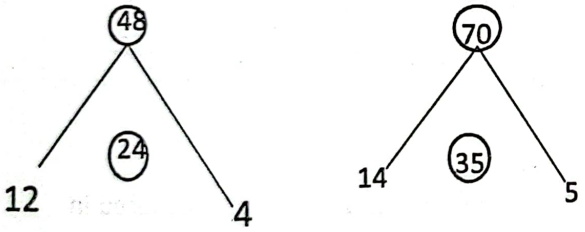

A. 21x
B. 11x
C. 9x
D. 7x
E. 2x

52.

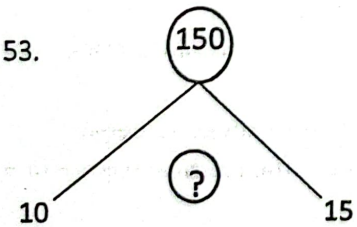



A. 5x
B. 25x
C. 10x
D. 11x
E. 6x

Use the sample below to answer questions 53 and 54.

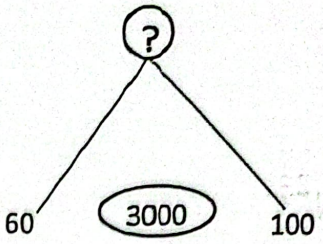



53.



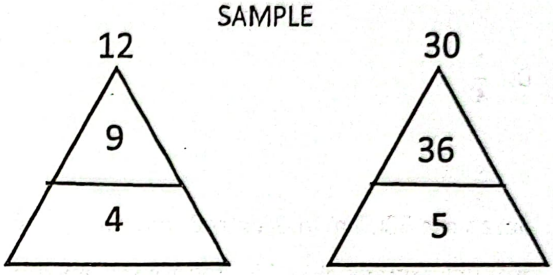

A. 300
B. 75
C. 25
D. 150
E. 5

54.



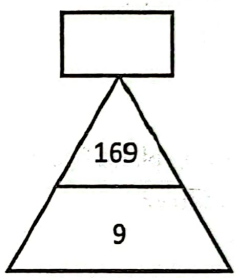

A. 1500
B. 40
C. Diameter
D. 6000
E. 160

SAMPLE



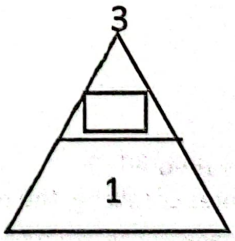

Use the sample above to answer questions 55 and 56.

55.




A. 178
B. 172
C. 117
D. 45
E. 56

56.




A. 3
B. 2
C. 10
D. 4
E. 9

SAMPLE

| | |
|---|---|
| 7 | 9 |
| 5 | 12 |
| 4 | 15 |
| 3 | 21 |

| | |
|---|---|
| 12 | 24 |
| 5 | 36 |
| 13 | 15 |
| 8 | 39 |

Use the sample above to answer questions 57 and 58.

57.

| | |
|---|---|
| 9 | 45 |
| 3 | 24 |
| ☐ | 9 |
| 15 | 27 |

A. 8
B. 5
C. 16
D. 30
E. 25

58.

| | |
|---|---|
| 40 | ☐ |
| 10 | 18 |
| 6 | 30 |
| 7 | 120 |

A. 63
B. 189
C. 35
D. 21
E. 105

SAMPLE

$4 \Delta 3 = 4 \times 3 = 12$

$9 \Delta\Delta 3 = {}^{9}/_{3} = 3$

$8 \Delta\Delta\Delta 2 = 8 \times 8 \times 2 = 128$

Use the sample above to answer questions 59 and 60.

59. $\dfrac{6 \Delta\Delta\Delta 4}{3 \Delta\Delta 1} = ?$

A. 48
B. 72
C. 14
D. 10
E. 8

60. $\dfrac{24 \Delta\Delta 8}{2 \Delta \frac{1}{4}} = ?$

A. 3
B. 24
C. 6
D. 8
E. 1