IBCM Entrance Exam

Mathematics Section

Student Name and Last Name:

_____

Student's Personal Number:

_____

Student's Application Code:

_____

Date of the exam:

_____

Score:

_____ / 100 points

Instructions

Welcome to the Mathematics section of the IBCM Entrance Exam. This section is designed to test your numerical reasoning, logic, and problem-solving skills. You do not need a calculator or advanced mathematics knowledge to complete this part of the test.

Please read and follow the instructions below carefully:

1. You have 1.5 hours (90 minutes) to complete this section.
2. Do not use calculators, mobile phones, smartwatches, or any other electronic devices.
3. Do not access the internet, notes, or any external sources during the exam.
4. Only blue-ink pens are allowed on your desk, along with this test paper and your personal ID.
5. Answer the questions directly on the exam sheets provided below. Ensure to properly circle any multiple-choice answer. Multiple circles on the same question will be considered incorrect.
6. Taking pictures or copies of this exam are not allowed, and any attempt to do so, or distribute such materials will result in disqualification of the candidate.
7. If you need clarification, raise your hand — an exam supervisor will assist you. No talking with other candidates is allowed.
8. Use your time wisely. If you're unsure about a question, move on and return to it later if time allows.
9. Cheating or attempting to use unauthorized materials will result in disqualification.

By continuing with this exam, you confirm that you understand and agree to follow these rules.

Good luck!

Section A: Mental Arithmetic & Estimation (6 questions – 15 points)

1. *(2 pts)*
What is the result of: **15.8 + 9.3 − 7.1 = ?**
A) 18.0
B) 18.2
C) 18.5
D) 19.3

2. *(3 pts)*
Anna spent **€120** on clothes. This was **30%** of her monthly salary.
How much is her total monthly salary?

_____

3. *(2 pts)*
Round **3,984** to the nearest hundred.
A) 3,900
B) 3,980
C) 4,000
D) 4,100

4. *(2 pts)*
Convert **3/5** into a percentage.

_____

5. *(3 pts)*
Which of the following expressions results in the **highest value**?
A) 2 × (6 + 5)
B) 3 + 4 × 2
C) (3 + 4) × 2
D) (6 + 5) ÷ 2

6. *(3 pts)*
A shirt that originally cost **€60** is on sale for **25% off**.
How much is the final price?

_____

Section B: Word Problems & Ratios (4 questions – 18 points)

7. *(4 pts)*
Two friends share **€96** in a ratio of **5:3**.
How much does each person receive?

Person 1:

_____

Person 2:

_____

8. *(5 pts)*
A recipe for 6 people requires 900g of flour.
How much flour is needed for 10 people?

_____

9. *(5 pts)*
Train A leaves City A at 08:00 and arrives in City B at 11:45.
Train B leaves City A at 09:30 and arrives in City B at 12:15.
Which train is faster, and by how many minutes is it faster?

_____

10. *(4 pts)*
In a group of 60 students, **2/3** are right-handed.
How many are left-handed?

_____

Section C: Patterns & Sequences (5 questions – 15 points)

11. *(3 pts)*
What number comes next in the sequence:
2, 6, 12, 20, 30,…?
A) 36
B) 40
C) 42
D) 44

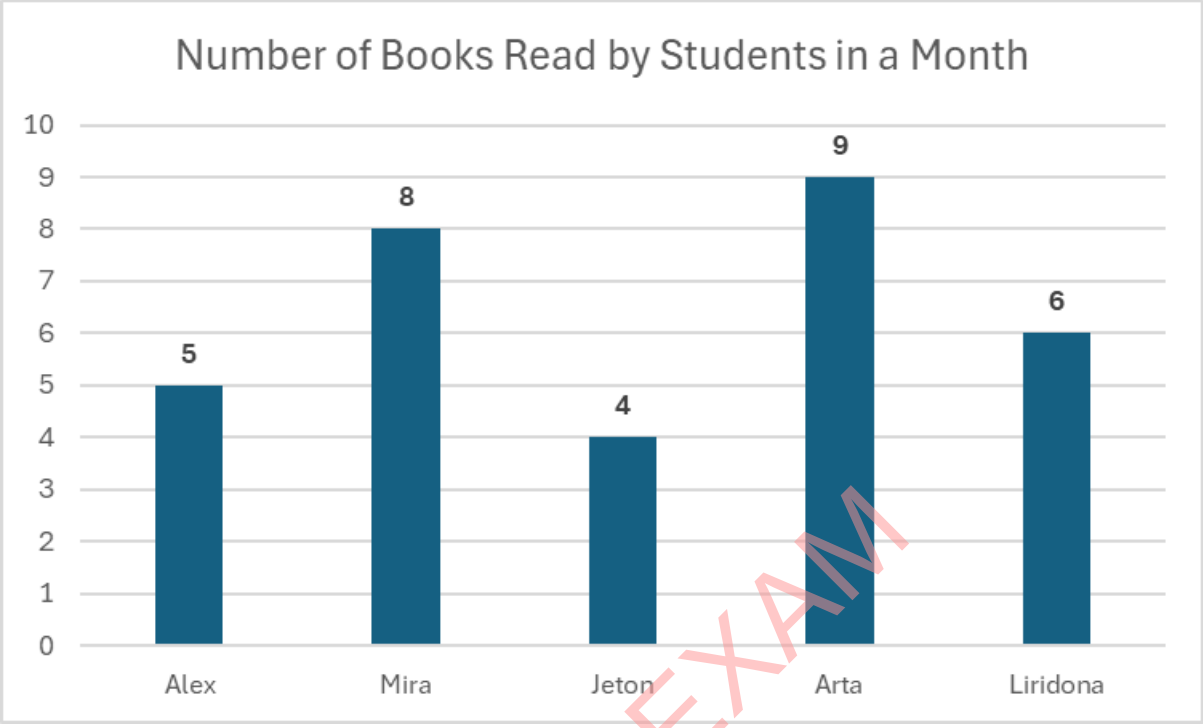
12. *(3 pts)*
Which of the following numbers is a multiple of both **6 and 9**?
A) 12
B) 24
C) 36
D) 81

13. *(3 pts)*
A pattern follows the rule: Multiply the number by 2 and add 1.
If the first number is 1, what is the **fourth number** in the pattern?
A) 7
B) 9
C) 11
D) 15

14. *(3 pts)*
If **x + x + x = 27**, what is the value of x?
A) 7
B) 8
C) 9
D) 10

15. *(3 pts)*
Complete the pattern:
5, 10, 20, __, 80
A) 30
B) 35
C) 40
D) 60

Section D: Data Interpretation (5 questions – 15 points)
Use the bar chart below for Questions 16–18:



16. *(3 pts)*
Who read the **most books**?
A) Alex
B) Mira
C) Arta
D) Liridona

17. *(3 pts)*
How many more books did Arta read than Jeton?

_____

18. *(3 pts)*
What is the **average** number of books read by all 5 students?

_____

19. *(3 pts)*
A survey asked 50 students to choose their favorite fruit:

- 20 chose apples
- 15 chose bananas
- 10 chose oranges
- 5 chose strawberries

What **percentage** chose bananas?

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20. *(3 pts)*
A store sells pens in packs of 12.
If 96 pens were sold, how many packs were sold?
A) 6
B) 8
C) 10
D) 12

Section E: Algebraic & Logical Reasoning

(4 questions – 15 points)

21. *(4 pts)*
Simplify:
3x + 5 − 2x + 7 − x = ?
A) 2x + 12
B) 15
C) x + 12
D) 12

22. *(4 pts)*
Solve for x:
2x − 7 = 5
A) x = 1
B) x = 6
C) x = −6
D) x = 5

23. *(3 pts)*
Which of the following numbers is **not** a prime number?
A) 2
B) 11
C) 15
D) 17

24. *(4 pts)*
A box contains 5 red balls, 3 green balls, and 2 blue balls.
You randomly pick one ball.
What is the probability of picking a green or blue ball?
A) 3/10
B) 2/10
C) 1/3
D) 1/2

Section F: Probability & Geometry

(6 questions – 22 points)

25. *(4 pts)*
A coin is flipped three times.
What is the probability of getting **at least one head**?
A) 1/8
B) 3/8
C) 7/8
D) 1/2

26. *(4 pts)*
A cube has all sides of 5 cm.
What is its volume?
A) 25 cm^3
B) 75 cm^3
C) 100 cm^3
D) 125 cm^3

27. *(4 pts)*
The perimeter of a rectangle is 24 cm. Its length is 7 cm.
What is its width?
A) 5 cm
B) 6 cm
C) 8 cm
D) 12 cm

28. *(3 pts)*
A square corner, like the corner of a book or paper, is called a "right angle."
How many degrees does a right angle have?
A) 45°
B) 90°
C) 180°
D) 360°

29. *(3 pts)*
What is the total number of degrees inside any triangle?
A) 90°
B) 180°
C) 270°
D) 360°

30. *(4 pts)*
A circle has a radius of 7 cm. What is the approximate area?
(Use $\pi \approx 3.14$)
A) 154 cm^2
B) 49 cm^2
C) 44 cm^2
D) 22 cm^2