

Mindbenz Olympiad of Mathematics (MOM)

Sample Paper

Grade - 5

Maximum Marks: 40

Time Allowed – 45 Minutes

Section: A Fundamental Check (10 Questions $\times$ 1 mark = 10 marks)

1. What is the difference between the place value of the digit '7' and the face value of the digit '3' in the number 47,03,56,981?

- (a) 6,99,99,997
- (b) 7,00,00,000
- (c) 6,99,99,700
- (d) 7,00,00,003

2. Evaluate in Roman numerals: $(XC + XL) - XIX$

- (a) CXXXI
- (b) CXI
- (c) CXXI
- (d) CXIX

3. Find the value of: $100 \div 0.01 + 50 \times 0.5 - (2.5)^2$

- (a) $1025 - 6.25$
- (b) $10000 + 25 - 6.25$
- (c) $1000 + 25 - 6.25$
- (d) $10000 + 2.5 - 5$

4. Which of the following is equivalent to $2\frac{1}{3} \div (\frac{11}{2} + \frac{5}{6})$?

- (a) $\frac{7}{4}$
- (b) $\frac{21}{19}$
- (c) $\frac{19}{12}$
- (d) $\frac{12}{7}$

5. Convert 0.00000095 km to centimeters.

- (a) 0.0095 cm

- (b) 0.095 cm
- (c) 0.95 cm
- (d) 9.5 cm

6. At what temperature is the Fahrenheit scale reading exactly double the Celsius scale reading?

- (a) 160°F
- (b) 320°F
- (c) -12.3°F
- (d) -40°F

7. A solid with no vertices and one curved surface and two flat circular bases is a:

- (a) Sphere
- (b) Cone
- (c) Cylinder
- (d) Torus

8. Two angles are on a straight line. One angle is $(3x - 10)^{\circ}$ and the other is $(2x + 30)^{\circ}$. What is the value of x ?

- (a) 32
- (b) 34
- (c) 36
- (d) 40

9. If $y = 3$, what is the value of the algebraic expression $y^3 - 4y^2 + 6y - 8$?

- (a) -5
- (b) 1
- (c) 7
- (d) 13

10. In a frequency table, the tally marks |||| represent a frequency of:

- (a) 4
- (b) 8
- (c) 9
- (d) 10

Section: B Application Zone (10 Questions × 1 mark = 10 marks)

11. A trader bought 250 articles at ₹45 each. He spent ₹500 on transport and ₹250 on coolie charges. If he sold them at ₹55 each, calculate his total profit.

- (a) ₹1500
- (b) ₹1750
- (c) ₹2000
- (d) ₹2250

12. A fraction is such that if 1 is added to the numerator and 1 is subtracted from the denominator, it becomes 1. If 1 is subtracted from the numerator and 1 is added to the denominator, it becomes $\frac{1}{3}$. What is the original fraction?

- (a) $\frac{3}{5}$
- (b) $\frac{4}{5}$
- (c) $\frac{3}{4}$
- (d) $\frac{4}{3}$

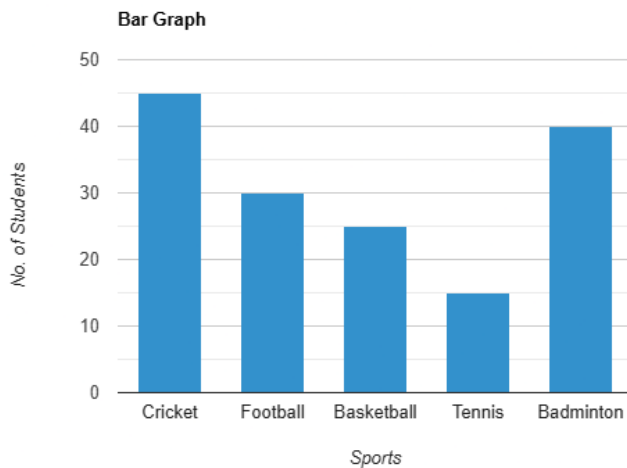
13. A rectangular lawn is 30 m by 20 m. A path of 2 m width runs inside it, along its boundary. Find the area of the path.

- (a) 184 sq m
- (b) 200 sq m
- (c) 216 sq m
- (d) 240 sq m

14. A car travels from city A to city B at a speed of 40 km/h and returns from city B to city A at a speed of 60 km/h. What is the average speed of the car for the entire journey?

- (a) 48 km/h
- (b) 50 km/h
- (c) 52 km/h
- (d) 55 km/h

15. The bar graph shows the number of students who chose different sports. Use the data below to answer the question:



How many more students choose Cricket than the total number of students who choose Tennis and Basketball combined?

- (a) 5
- (b) 10
- (c) 15
- (d) 20

16. The dimensions of a cuboidal box are 1.5 m, 1.2 m, and 0.8 m. Find the total surface area of the box in square centimeters.

- (a) 79200 sq cm
- (b) 79.20 sq m
- (c) 8120 sq cm
- (d) 79000 sq cm

17. The temperature in a city dropped from 35.5°C to 28.75°C in 6 hours. If the drop was uniform, what was the temperature after 4 hours from the start?

- (a) 31.0°C
- (b) 30.25°C
- (c) 30.5°C
- (d) 30.75°C

18. A sum of money was distributed among A, B, and C in the ratio 5:6:4. If B received ₹1200 more than C, what was the total sum of money distributed?

- (a) ₹7500
- (b) ₹8000

- (c) ₹9000
- (d) ₹10000

19. A container holds 25 liters of paint. A painter uses $\frac{2}{5}$ of the paint on the first day and $\frac{1}{3}$ of the remaining paint on the second day. How many liters of paint are left?

- (a) 8 liters
- (b) 10 liters
- (c) 12 liters
- (d) 15 liters

20. A survey recorded the ages of people in a group: 25, 32, 18, 45, 32, 22, 38. What is the mean age, rounded to one decimal place?

- (a) 30.0 years
- (b) 30.3 years
- (c) 30.6 years
- (d) 30.9 years

Section C: Maths Mastery (10 Questions × 2 marks = 20 marks)

21. A rectangular field has an area of 1200 sq m. If its length is increased by 10 meters and its width is decreased by 2 meters, the area remains the same. What is the perimeter of the original rectangular field?

- (a) 140 m
- (b) 160 m
- (c) 180 m
- (d) 200 m

22. A rectangular plot of land measures 20 meters by 15 meters. $\frac{1}{4}$ of the total area is used to build a house. $\frac{2}{3}$ of the remaining area is used for a garden. The cost of developing the garden is ₹500 per square foot. If 1 meter = 3.28 feet, what is the total cost of developing the garden?

- (a) ₹780000
- (b) ₹806880

(c) ₹833760

(d) ₹860640

23. A cubical tank with an edge length of 1.2 meters is half-filled with water. If water is pumped into the tank at a rate of 60 liters per minute, how long will it take to fill the remaining half of the tank?

(a) 12 minutes 48 seconds

(b) 14 minutes 24 seconds

(c) 10 minutes 48 seconds

(d) 11 minutes 36 seconds

24. The average weight of a group of 10 people is 55 kg. If two new people join the group with weights 65 kg and 75 kg, what is the new average weight of the group?

(a) 57.5 kg

(b) 58 kg

(c) 52 kg

(d) 54 kg

25. A square has the same perimeter as a rectangle with length 15 cm and width 9 cm. What is the area of the square?

(a) 81 sq cm

(b) 100 sq cm

(c) 121 sq cm

(d) 144 sq cm

26. A train covers a distance of 360 km in 4 hours. If its speed is increased by 10 km/h, how much time will it take to cover a distance of 450 km?

(a) 4 hours 30 minutes

(b) 5 hours

(c) 5 hours 30 minutes

(d) 6 hours

27. John earns ₹25,000 per month. He spends $\frac{1}{5}$ of his income on rent, $\frac{3}{10}$ on food, and $\frac{1}{4}$ on other expenses. He saves the rest. How much does he save annually?

(a) ₹60,000

- (b) ₹75,000
- (c) ₹90,000
- (d) ₹1,20,000

28. The sum of the interior angles of a regular polygon is 1080° . If the perimeter of this polygon is 60 cm, what is the length of each side?

- (a) 7.5 cm
- (b) 10.5 cm
- (c) 12.5 cm
- (d) 15.5 cm

29. A mixture contains milk and water in the ratio 5:3. If 16 liters of water are added to the mixture, the ratio of milk to water becomes 3:5. What was the initial quantity of milk in the mixture?

- (a) 15 liters
- (b) 30 liters
- (c) 45 liters
- (d) 60 liters

30. The temperature in city A is -8°C . The temperature in city B is 15°F . What is the difference in temperature between the two cities in degrees Celsius?

- (a) 1.44°C
- (b) 6.44°C
- (c) 2.44°C
- (d) 4.44°C

Answers

1. (a) 6,99,99,997
2. (b) CXI
3. (b) $10000 + 25 - 6.25$
4. (b) $4/7$
5. (B) 0.095 cm
6. (b) 320°F

7. (c) Cylinder
8. (a) 32
9. (b) 1
10. (a) 4
11. (b) ₹1750
12. (a) $\frac{3}{5}$
13. (a) 184 sq m
14. (a) 48 km/h
15. (a) 5
16. (a) 79200 sq cm
17. (a) 31.0°C
18. (c) ₹9000
19. (b) 10 liters
20. (b) 30.3 years
21. (b) 160 m
22. (b) ₹806880
23. (b) 14 minutes 24 seconds
24. (a) 57.5 kg
25. (d) 144 sq cm
26. (a) 4 hours 30 minutes
27. (b) ₹75,000
28. (a) 7.5 cm
29. (a) 15 liters
30. (a) 1.44°C