

Full Practice Exam — Set 1

Mathematics · Class 8 · Full Syllabus Practice Exam

TIME 60 minutes	QUESTIONS 50	TOTAL MARKS 60	MAX. SCORE ___ / 60
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **50 questions** in this paper. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–45 carry **1 mark** each. Questions 46–50 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Use of a calculator is **not** allowed.
- Rough work may be done in the space at the side of each page.

Section 1 — Logical Reasoning

Q1–Q10 · 1 mark each

- What comes next in the series? 2, 3, 5, 8, 13, ____
 (A) 18 (B) 19
 (C) 20 (D) 21
- Find the **odd one out**: 8, 27, 45, 64
 (A) 8 (B) 27
 (C) 45 (D) 64
- What comes next in the series? CE, FH, IK, ____
 (A) LN (B) LM
 (C) MN (D) KN
- In a certain code, COMPUTER is written as 3-15-13-16-21-20-5-18. How is MONITOR be written in the same code?
 (A) 13-15-14-9-20-15-18 (B) 13-15-14-9-19-15-18
 (C) 12-15-14-9-20-15-18 (D) 13-14-14-9-20-15-18
- Pointing to a girl, a man said, 'She is the daughter of the only son of my father.' How is the girl related to the man?
 (A) Niece (B) Daughter
 (C) Sister (D) Granddaughter
- In a queue of 45 people, Rani is 18th from the front. What is her position from the back?
 (A) 27th (B) 30th
 (C) 29th (D) 28th
- A man walks 15 km east, then turns and walks 8 km south. How far is he from the starting point?
 (A) 17 km (B) 7 km
 (C) 23 km (D) 120 km

8. Which number should replace the question mark? 4, 9, 19, 39, ____
- (A) 59 (B) 69
(C) 79 (D) 99
9. $12 : 144 :: 15 : \underline{\hspace{1cm}}$
- (A) 180 (B) 195
(C) 210 (D) 225
10. If 1 January 2027 is a Friday, what day of the week is 30 January 2027?
- (A) Friday (B) Saturday
(C) Sunday (D) Monday

Section 2 — Mathematical Reasoning

Q11–Q28 · 1 mark each

11. The additive inverse of $\frac{-5}{7}$ is ____.
- (A) 0 (B) $\frac{-7}{5}$
(C) $\frac{7}{5}$ (D) $\frac{5}{7}$
12. Which of these is a perfect square?
- (A) 121 (B) 122
(C) 123 (D) 124
13. $\sqrt{1024} = \underline{\hspace{1cm}}$
- (A) 24 (B) 28
(C) 32 (D) 34
14. The value of 3^{-2} is ____.
- (A) $\frac{1}{9}$ (B) -6
(C) -9 (D) $\frac{1}{6}$
15. $2^5 \times 2^3 = \underline{\hspace{1cm}}$
- (A) 2^{15} (B) 2^8
(C) 4^8 (D) 2^2
16. 25% of 480 is ____.
- (A) 96 (B) 110
(C) 120 (D) 125
17. An article bought for ₹250 is sold for ₹300. The profit per cent is ____.
- (A) $16\frac{2}{3}\%$ (B) 50%
(C) 25% (D) 20%
18. How many terms are there in $4x^2y - 3xy + 7$?
- (A) 1 (B) 2
(C) 3 (D) 4

19. $(a + b)^2 =$ _____.
 (A) $a^2 + 2ab + b^2$ (B) $a^2 + b^2$
 (C) $a^2 - 2ab + b^2$ (D) $a^2 - b^2$
20. The solution of $3x + 5 = 20$ is $x =$ _____.
 (A) 3 (B) 5
 (C) 15 (D) 25
21. The sum of the interior angles of any quadrilateral is _____.
 (A) 180° (B) 360°
 (C) 270° (D) 540°
22. The diagonals of a rhombus _____.
 (A) Are equal in length (B) Are parallel to each other
 (C) Do not intersect (D) Bisect each other at right angles
23. The area of a trapezium whose parallel sides are a and b and height h is _____.
 (A) $\frac{1}{2}(a+b)h$ (B) $(a+b)h$
 (C) $\frac{1}{2}abh$ (D) $a \times b \times h$
24. The volume of a cube of side 5 cm is _____.
 (A) 25 cm^3 (B) 125 cm^3
 (C) 75 cm^3 (D) 150 cm^3
25. If x and y are in direct proportion, then _____ stays constant.
 (A) $x \times y$ (B) $x - y$
 (C) $x + y$ (D) $\frac{x}{y}$
26. The observation that occurs most often in a set of data is called the _____.
 (A) Mode (B) Median
 (C) Mean (D) Range
27. The probability of getting a head when a fair coin is tossed once is _____.
 (A) 0 (B) $\frac{1}{2}$
 (C) $\frac{1}{4}$ (D) 1
28. A number is divisible by 9 if _____.
 (A) It is an odd number (B) Its last digit is 9
 (C) The sum of its digits is divisible by 9 (D) Its last two digits are divisible by 9

Section 3 — Everyday Mathematics

Q29–Q45 · 1 mark each

29. Two numbers are in the ratio 3 : 5. If the first is 12, the second number is _____.
 (A) 15 (B) 18
 (C) 20 (D) 25

30. A discount of 20% is given on an article marked at ₹1,500. Its selling price is _____.
 (A) ₹1,480 (B) ₹1,250
 (C) ₹1,300 (D) ₹1,200
31. The simple interest on ₹5,000 at 8% per annum for 2 years is _____.
 (A) ₹800 (B) ₹640
 (C) ₹400 (D) ₹1,000
32. A ladder rests against a wall so that its foot is 15 m from the wall and its top is 20 m up the wall. What is the length of the ladder?
 (A) 30 m (B) 25 m
 (C) 35 m (D) 40 m
33. The area of a square field is $1,156 \text{ m}^2$. Find the cost of fencing it at ₹25 per metre.
 (A) ₹850 (B) ₹1,156
 (C) ₹3,400 (D) ₹6,800
34. Using a suitable identity, the value of 98×102 is _____.
 (A) 10,000 (B) 9,998
 (C) 10,004 (D) 9,996
35. A rectangular plot has length $(x+5)$ m and breadth $(x-2)$ m. Its area in m^2 is _____.
 (A) $x^2+3x-10$ (B) x^2-10
 (C) $x^2+7x-10$ (D) $2x+3$
36. The sum of two consecutive natural numbers is 75. The smaller number is _____.
 (A) 36 (B) 37
 (C) 38 (D) 39
37. A father is 3 times as old as his son. After 12 years he will be twice as old as his son. Find the son's present age.
 (A) 10 years (B) 12 years
 (C) 14 years (D) 16 years
38. In parallelogram ABCD, $\angle A = 65^\circ$. Find $\angle B$.
 (A) 65° (B) 125°
 (C) 115° (D) 180°
39. The diagonals of a rhombus are 16 cm and 12 cm. The length of each side is _____.
 (A) 28 cm (B) 14 cm
 (C) 20 cm (D) 10 cm
40. A cuboidal box measures 10 cm by 8 cm by 6 cm. Its volume is _____.
 (A) 480 cm^3 (B) 376 cm^3
 (C) 144 cm^3 (D) 240 cm^3
41. A cylindrical drum has radius 7 cm and height 10 cm. Its volume is _____. (Take $\pi = \frac{22}{7}$.)
 (A) 440 cm^3 (B) $1,540 \text{ cm}^3$
 (C) $2,200 \text{ cm}^3$ (D) 154 cm^3

42. 15 workers can build a wall in 48 hours. How long would 20 workers of the same ability take?

- (A) 40 hours (B) 30 hours
(C) 36 hours (D) 64 hours

43. A recipe uses 3 cups of flour to make 12 biscuits. How much flour is needed for 20 biscuits?

- (A) 4 cups (B) $4\frac{1}{2}$ cups
(C) 6 cups (D) 5 cups

44. The bar graph shows the number of books issued from a library on five days. On how many days were more than 35 books issued?

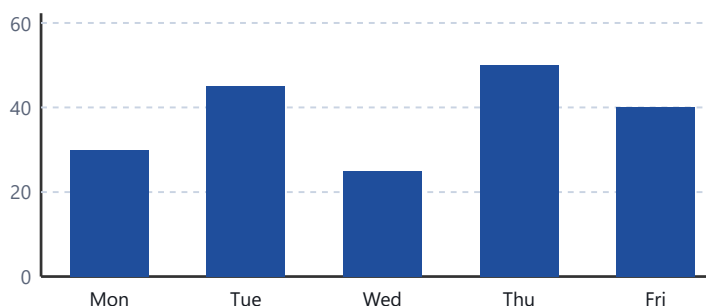


Fig. 43.1 — Books issued from the library

- (A) 1 (B) 2
(C) 3 (D) 4

45. A bag contains 5 red, 3 blue and 2 green balls. One ball is drawn at random. What is the probability that it is red?

- (A) $\frac{1}{2}$ (B) $\frac{3}{10}$
(C) $\frac{1}{5}$ (D) $\frac{5}{3}$

Achievers Section

Q46–Q50 · 3 marks each

46. Find x if $(\frac{5}{3})^{-2} \times (\frac{5}{3})^{-5} = (\frac{5}{3})^{2x-1}$.

- (A) 3 (B) -3
(C) -4 (D) 4

47. Factorise $x^4 - 16$ completely.

- (A) $(x^2-4)(x^2+4)$ (B) $(x-2)^2(x+2)^2$
(C) $(x-2)(x+2)(x^2+4)$ (D) $(x-4)(x+4)$

48. The price of an article is increased by 20% and then decreased by 20%. The net change is _____.

- (A) No change (B) A 4% increase
(C) A 20% decrease (D) A 4% decrease

49. Two bells ring together at 6 a.m. One rings every 12 minutes and the other every 18 minutes. At what time will they next ring together?

- (A) 6:36 a.m. (B) 6:30 a.m.
(C) 6:48 a.m. (D) 7:00 a.m.

Answer Key

1	D	2	C	3	A	4	A	5	B
6	D	7	A	8	C	9	D	10	B
11	D	12	A	13	C	14	A	15	B
16	C	17	D	18	C	19	A	20	B
21	B	22	D	23	A	24	B	25	D
26	A	27	B	28	C	29	C	30	D
31	A	32	B	33	C	34	D	35	A
36	B	37	B	38	C	39	D	40	A
41	B	42	C	43	D	44	C	45	A
46	B	47	C	48	D	49	A	50	B

Solutions

1. Answer: (D) 21

Each number is the sum of the two before it: $2+3=5$, $3+5=8$, $5+8=13$, $8+13=21$.

2. Answer: (C) 45

$8=2^3$, $27=3^3$ and $64=4^3$ are perfect cubes. **45** is not, so it is the odd one out.

3. Answer: (A) LN

Both letters jump ahead by 3 each time: C,F,I,**L** and E,H,K,**N**. So the next pair is **LN**.

4. Answer: (A) 13-15-14-9-20-15-18

Each letter is replaced by its position: M=13,O=15,N=14,I=9,T=20,O=15,R=18, giving **13-15-14-9-20-15-18**.

5. Answer: (B) Daughter

The only son of the man's father is either the man himself or his only brother. If the man has no brother, then 'the only son of my father' is the man himself, so the girl is his **daughter**.

6. Answer: (D) 28th

Position from the back = $45 - 18 + 1 = 28\text{th}$.

7. Answer: (A) 17 km

Distance = $\sqrt{(15^2+8^2)} = \sqrt{(225+64)} = \sqrt{289} = 17 \text{ km}$.

8. Answer: (C) 79

Each number is doubled and 1 is added: $4 \times 2 + 1 = 9$, $9 \times 2 + 1 = 19$, $19 \times 2 + 1 = 39$, $39 \times 2 + 1 = 79$.

9. Answer: (D) 225

The second number is the first squared: $12^2=144$. So $15^2 = 225$.

10. Answer: (B) Saturday

30 January is 29 days after 1 January. $29 = 4 \times 7 + 1$, so 1 extra day after Friday is **Saturday**.

11. Answer: (D) $\frac{5}{7}$

$\frac{-5}{7} + \frac{5}{7} = 0$, so the additive inverse is $\frac{5}{7}$.

12. Answer: (A) 121

$121 = 11^2$, so it is a perfect square.

13. Answer: (C) 32

$1024=2^{10}$, so $\sqrt{1024}=2^5=32$.

14. Answer: (A) $\frac{1}{9}$

$3^{-2}=1 \div 3^2 = \frac{1}{9}$.

15. Answer: (B) 2^8

$2^{5+3}=2^8$.

16. Answer: (C) 120

25% of 480 = $480 \div 4 = 120$.

17. Answer: (D) 20%

Profit=50. Profit%=($50 \div 250$) $\times 100=20\%$.

18. Answer: (C) 3

The terms are $4x^2y$, $-3xy$ and 7 — **3** terms.

19. Answer: (A) $a^2+2ab+b^2$

$$(a+b)^2 = a^2+2ab+b^2.$$

20. Answer: (B) 5

$$3x=15, x=5.$$

21. Answer: (B) 360°

A quadrilateral splits into 2 triangles, so the sum is $2 \times 180^\circ = 360^\circ$.

22. Answer: (D) Bisect each other at right angles

The diagonals of a rhombus **bisect each other at right angles**.

23. Answer: (A) $\frac{1}{2}(a+b)h$

$$\text{Area} = \frac{1}{2}(a+b)h.$$

24. Answer: (B) 125 cm^3

$$5^3 = 125 \text{ cm}^3.$$

25. Answer: (D) $\frac{x}{y}$

In direct proportion, $\frac{x}{y}$ stays constant.

26. Answer: (A) Mode

The **mode** is the most frequently occurring observation.

27. Answer: (B) $\frac{1}{2}$

$$P(\text{head}) = \frac{1}{2}.$$

28. Answer: (C) The sum of its digits is divisible by 9

The test for 9 is that **the sum of the digits must be divisible by 9**.

29. Answer: (C) 20

$$1 \text{ part}=4. \text{ Second} = 5 \times 4 = 20.$$

30. Answer: (D) ₹1,200

$$\text{Discount}=300. \text{ SP}=1500-300=\text{₹}1,200.$$

31. Answer: (A) ₹800

$$\text{SI}=(5000 \times 8 \times 2) \div 100=\text{₹}800.$$

32. Answer: (B) 25 m

$$\sqrt{(15^2+20^2)}=\sqrt{625}=25 \text{ m}.$$

33. Answer: (C) ₹3,400

$$\text{Side}=34 \text{ m. Perimeter}=136 \text{ m. Cost}=136 \times 25=\text{₹}3,400.$$

34. Answer: (D) 9,996

$$98 \times 102 = (100-2)(100+2) = 10000-4 = 9,996.$$

35. Answer: (A) $x^2+3x-10$

$$(x+5)(x-2)=x^2+3x-10.$$

36. Answer: (B) 37

$$2x+1=75, x=37.$$

37. Answer: (B) 12 years

$$3x+12=2(x+12), x=12 \text{ years}.$$

38. Answer: (C) 115°

$\angle A$ and $\angle B$ are supplementary: $180 - 65 = \mathbf{115^\circ}$.

39. Answer: (D) 10 cm

Side = $\sqrt{8^2 + 6^2} = \sqrt{100} = \mathbf{10 \text{ cm}}$.

40. Answer: (A) 480 cm^3

$10 \times 8 \times 6 = \mathbf{480 \text{ cm}^3}$.

41. Answer: (B) $1,540 \text{ cm}^3$

Volume = $\pi r^2 h = \frac{22}{7} \times 49 \times 10 = \mathbf{1,540 \text{ cm}^3}$.

42. Answer: (C) 36 hours

$15 \times 48 = 20 \times t$, $t = \mathbf{36 \text{ hours}}$.

43. Answer: (D) 5 cups

$\frac{3}{12} = \frac{f}{20}$, $f = \mathbf{5 \text{ cups}}$.

44. Answer: (C) 3

Monday 30, Tuesday 45, Wednesday 25, Thursday 50, Friday 40. Days above 35: Tue, Thu, Fri = **3**.

45. Answer: (A) $\frac{1}{2}$

5 out of 10. $P = \mathbf{\frac{1}{2}}$.

46. Answer: (B) -3

Adding exponents on the left: $-2 + (-5) = -7$.

So $2x - 1 = -7$, giving $2x = -6$, $x = \mathbf{-3}$.

47. Answer: (C) $(x-2)(x+2)(x^2+4)$

$x^4 - 16 = (x^2 - 4)(x^2 + 4) = \mathbf{(x-2)(x+2)(x^2+4)}$, fully factorised.

48. Answer: (D) A 4% decrease

$100 \rightarrow 120 \rightarrow 96$. Net change = **4% decrease**.

49. Answer: (A) 6:36 a.m.

LCM of 12 and 18 = 36 minutes. Next together at **6:36 a.m.**

50. Answer: (B) 30,800 litres

Volume = $\frac{22}{7} \times 1.4 \times 1.4 \times 5 = 30.8 \text{ m}^3 = \mathbf{30,800 \text{ litres}}$.