

Full Practice Exam — Set 3

Mathematics · Class 7 · 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, 5, 11, 23, 47, ____
 (A) 95 (B) 92
 (C) 94 (D) 96
- Find the **odd one out**: 64, 125, 216, 300
 (A) 64 (B) 300
 (C) 125 (D) 216
- What comes next in the series? CE, FH, IK, ____
 (A) LM (B) KN
 (C) MN (D) LN
- In a certain code, MANGO is written as 13-1-14-7-15. How is LEMON written in the same code?
 (A) 12-5-13-14-15 (B) 11-5-13-15-14
 (C) 12-5-14-15-13 (D) 12-5-13-15-14
- M is N's mother. N is O's father. How is M related to O?
 (A) Aunt (B) Mother
 (C) Grandmother (D) Grandfather
- In a line of 42 students, Tara is 15th from the left end. What is her position from the right end?
 (A) 27th (B) 29th
 (C) 26th (D) 28th
- A boat travels 5 km south, then 12 km east. How far is it from its starting point?
 (A) 17 km (B) 7 km
 (C) 13 km (D) 60 km
- DOCTOR is to HOSPITAL as TEACHER is to ____
 (A) Book (B) Student
 (C) Blackboard (D) School

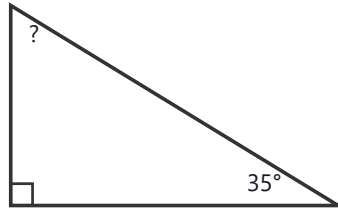
9. $4 : 20 :: 6 : \underline{\hspace{1cm}}$
- (A) 42 (B) 36
(C) 40 (D) 48
10. If 10 August is a Monday, what day of the week is 2 September?
- (A) Wednesday (B) Tuesday
(C) Thursday (D) Sunday

Section 2 — Mathematical Reasoning

Q11–Q28 · 1 mark each

11. $(-24) \div 4 \times (-3) = \underline{\hspace{1cm}}$
- (A) -18 (B) 18
(C) 2 (D) -2
12. The additive inverse of $\frac{-11}{17}$ is $\underline{\hspace{1cm}}$.
- (A) $\frac{-17}{11}$ (B) $\frac{17}{11}$
(C) $\frac{11}{17}$ (D) 0
13. $5^3 \times 5^4 \div 5^5 = \underline{\hspace{1cm}}$
- (A) 5^1 (B) 5^3
(C) 5^4 (D) 5^2
14. The standard form of 7,05,00,000 is $\underline{\hspace{1cm}}$.
- (A) 7.05×10^7 (B) 7.05×10^6
(C) 7.5×10^7 (D) 7.05×10^8
15. The solution of $4x + 7 = 2x + 25$ is $x = \underline{\hspace{1cm}}$.
- (A) 7 (B) 8
(C) 9 (D) 11
16. Two angles that share a common vertex and a common arm, but do not overlap, are called $\underline{\hspace{1cm}}$ angles.
- (A) Complementary (B) Adjacent
(C) Vertically opposite (D) Supplementary
17. The sum of the exterior angles of any convex polygon, taken one at each vertex, is $\underline{\hspace{1cm}}$.
- (A) 270° (B) 180°
(C) 360° (D) 540°

18. In the triangle shown, one angle is a right angle and another angle is marked. What is the size of the third angle?



Right triangle with one angle marked

- (A) 45° (B) 35°
(C) 65° (D) 55°
19. $\frac{9}{25}$ written as a percentage is _____.
(A) 36% (B) 38%
(C) 34% (D) 45%
20. An article bought for ₹480 is sold for ₹600. The profit per cent is _____.
(A) 20% (B) 25%
(C) 30% (D) 15%
21. The area of a triangle with base 18 cm and height 11 cm is _____.
(A) 49.5 cm^2 (B) 198 cm^2
(C) 99 cm^2 (D) 88 cm^2
22. The circumference of a circle of radius 21 cm is _____. (Take $\pi = \frac{22}{7}$.)
(A) 66 cm (B) 154 cm
(C) 44 cm (D) 132 cm
23. Find the range of the data: 23, 45, 12, 38, 50, 19
(A) 36 (B) 37
(C) 38 (D) 40
24. A triangle has sides 6 cm, 7 cm and 10 cm. Since $6^2 + 7^2 = 85$, which is less than $10^2 = 100$, this triangle is _____.
(A) Obtuse-angled (B) Acute-angled
(C) Equilateral (D) Right-angled
25. The reciprocal of $2\frac{3}{5}$ is _____.
(A) $\frac{13}{5}$ (B) $\frac{5}{13}$
(C) $\frac{3}{13}$ (D) $1\frac{5}{13}$
26. If the ratio of two numbers is 4 : 7 and their sum is 99, the smaller number is _____.
(A) 28 (B) 36
(C) 44 (D) 63

27. The simple interest on ₹7,500 at 8% per annum for 3 years is _____.
 (A) ₹1,200 (B) ₹1,500
 (C) ₹1,800 (D) ₹2,000
28. A fair die is rolled once. What is the probability of getting a number greater than 4?
 (A) $\frac{1}{6}$ (B) $\frac{1}{2}$
 (C) $\frac{2}{3}$ (D) $\frac{1}{3}$

Section 3 — Everyday Mathematics

Q29–Q45 · 1 mark each

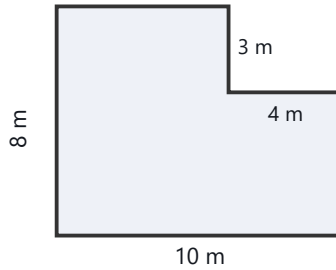
29. In a test, +3 marks are given for a correct answer and –1 for a wrong one. Aditi attempted 40 out of 50 questions and got 32 right. What was her score?
 (A) 88 (B) 84
 (C) 90 (D) 96
30. The temperature at a hill station fell from 6 °C to –9 °C overnight. By how much did it fall?
 (A) 15 °C (B) 3 °C
 (C) 9 °C (D) –15 °C
31. The population of a town is 68,50,000. In standard form this is _____.
 (A) 6.85×10^5 (B) 6.85×10^6
 (C) 6.8×10^6 (D) 6.85×10^7
32. Find the volume of a cuboid with length 15 cm, breadth 10 cm and height 6 cm.
 (A) 850 cm³ (B) 950 cm³
 (C) 900 cm³ (D) 1000 cm³
33. A ribbon is $18\frac{3}{4}$ m long. Pieces of $\frac{5}{8}$ m are cut from it. How many pieces are obtained?
 (A) 30 (B) 24
 (C) 28 (D) 32
34. The digits of a two-digit number are reversed, and the new number is 36 more than the original. What is the difference between the digits?
 (A) 3 (B) 4
 (C) 5 (D) 6
35. A shopkeeper marks his goods 50% above cost price and then allows a discount of 20%. What is his profit per cent?
 (A) 15% (B) 25%
 (C) 30% (D) 20%
36. A wire is bent into a square of side 22 cm. It is then straightened and bent into a circle. What is the radius of the circle? (Take $\pi = \frac{22}{7}$.)
 (A) 14 cm (B) 22 cm
 (C) 7 cm (D) 11 cm
37. A car covers 91 km using 6.5 litres of petrol. How far does it travel on 1 litre?
 (A) 12 km (B) 14 km
 (C) 13 km (D) 15 km

38. The table shows the number of story books sold by a shop over five days. Find the mean number of books sold per day.

Day	Mon	Tue	Wed	Thu	Fri
Books sold	18	22	15	25	20

Story books sold over five days

- (A) 18 (B) 20
(C) 19 (D) 22
39. The figure shows the floor plan of an L-shaped room. A rectangular corner measuring 4 m by 3 m has been removed from a rectangle measuring 10 m by 8 m, as shown. What is the area of the L-shaped room?



L-shaped room with a corner removed

- (A) 56 m² (B) 74 m²
(C) 68 m² (D) 80 m²
40. The mean of 7 numbers is 24. If one number is removed, the mean of the remaining 6 numbers becomes 22. What was the number removed?
- (A) 30 (B) 33
(C) 38 (D) 36
41. Find the value of $\frac{(3^3 \times 2^4)}{(3 \times 2^2)}$.
- (A) 36 (B) 24
(C) 30 (D) 48
42. Pipe A can fill a tank in 10 hours. Pipe B can empty the same tank in 15 hours. If both pipes are opened together on an empty tank, how long will it take to fill it?
- (A) 20 hours (B) 35 hours
(C) 25 hours (D) 30 hours
43. A vendor sells apples at ₹15 each and bananas at ₹9 each. He sold 3 more apples than bananas and collected ₹237 in all. How many bananas did he sell?
- (A) 6 (B) 7
(C) 8 (D) 9
44. The angles of a triangle are in the ratio 4 : 5 : 6. What is the largest angle?
- (A) 72° (B) 66°
(C) 80° (D) 60°
45. A ladder 25 m long leans against a wall with its foot 7 m from the wall. How high up the wall does it reach?
- (A) 18 m (B) 24 m
(C) 20 m (D) 22 m

46. Consider the following statements.

- (i) The product of two negative rational numbers is always positive.
- (ii) Subtraction of rational numbers is commutative.
- (iii) Every rational number can be expressed as a terminating or repeating decimal.

Which of the statements is/are correct?

- (A) (i) and (ii) only
- (B) (i) and (iii) only
- (C) (ii) and (iii) only
- (D) All three

47. A hot air balloon is at a height of 45 m above the ground. It descends 60 m, then rises 25 m, then descends 18 m. What is its final position relative to the ground (positions below ground are taken as negative)?

- (A) 12 m below ground
- (B) 2 m above ground
- (C) 8 m below ground
- (D) 18 m below ground

48. A tank is $\frac{3}{10}$ full of water. After 84 litres are added, it becomes $\frac{3}{5}$ full. What is the capacity of the tank?

- (A) 240 litres
- (B) 260 litres
- (C) 300 litres
- (D) 280 litres

49. The price of an item is increased by 20% and then decreased by 15%. What is the net percentage change in the price?

- (A) A 2% increase
- (B) No change
- (C) A 5% decrease
- (D) A 35% increase

50. Match the expressions in List I with their values in List II (not listed in matching order), then choose the correct combination.

List I	Expression	List II	Value
P	$3^2 \times 2^3$	1	14
Q	$\{2/5\}$ of 90	2	72
R	25% of 160	3	36
S	$\sqrt{196}$	4	40

List I (expressions) and List II (values, scrambled)

- (A) P-1, Q-2, R-3, S-4
- (B) P-2, Q-3, R-4, S-1
- (C) P-4, Q-1, R-2, S-3
- (D) P-3, Q-4, R-1, S-2

Answer Key

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

Solutions

1. Answer: (A) 95

Each term is double the previous term plus 1: $2 \times 2 + 1 = 5$, $5 \times 2 + 1 = 11$, $11 \times 2 + 1 = 23$, $23 \times 2 + 1 = 47$, so the next term is $47 \times 2 + 1 = \mathbf{95}$.

2. Answer: (B) 300

$64 = 4^3$, $125 = 5^3$ and $216 = 6^3$ are perfect cubes. **300** is not a perfect cube, so it is the odd one out.

3. Answer: (D) LN

The first letter advances by 3 each time: C, F, I, **L**. The second letter also advances by 3 each time: E, H, K, **N**. So the next pair is **LN**.

4. Answer: (D) 12-5-13-15-14

Each letter is replaced by its position in the alphabet.

L=12, E=5, M=13, O=15, N=14, giving **12-5-13-15-14**.

5. Answer: (C) Grandmother

N is O's father, so N's mother M is O's **grandmother**.

6. Answer: (D) 28th

Position from the right = total – position from left + 1 = $42 - 15 + 1 = \mathbf{28th}$.

7. Answer: (C) 13 km

The two paths meet at a right angle.

Distance = $\sqrt{5^2 + 12^2} = \sqrt{25 + 144} = \sqrt{169} = \mathbf{13 \text{ km}}$.

8. Answer: (D) School

A doctor works at a hospital, so by the same relationship, a teacher works at a **school**.

9. Answer: (A) 42

The second number equals the first number multiplied by one more than itself: $4 \times 5 = 20$. So $6 \times 7 = \mathbf{42}$.

10. Answer: (A) Wednesday

From 10 August to 2 September is 23 days. Since $23 = 3 \times 7 + 2$, this is 3 full weeks plus 2 extra days.

Counting on from Monday: Tuesday, **Wednesday**.

11. Answer: (B) 18

$(-24) \div 4 = -6$. Then $(-6) \times (-3) = \mathbf{18}$, since a negative times a negative gives a positive.

12. Answer: (C) $\frac{11}{17}$

$\frac{-11}{17} + \frac{11}{17} = 0$, so the additive inverse is $\frac{11}{17}$.

13. Answer: (D) 5^2

Adding the exponents in the numerator and subtracting the exponent being divided: $3 + 4 - 5 = 2$, so the value is $\mathbf{5^2}$.

14. Answer: (A) 7.05×10^7

7,05,00,000 = 70,500,000, which has 8 digits, so its standard form is $\mathbf{7.05 \times 10^7}$.

15. Answer: (C) 9

$4x - 2x = 25 - 7$, $2x = 18$, $x = \mathbf{9}$.

16. Answer: (B) Adjacent

Angles that share a vertex and one arm without overlapping are called **adjacent** angles.

17. Answer: (C) 360°

For any convex polygon, the exterior angles taken one at each vertex always add up to $\mathbf{360^\circ}$, regardless of the number of sides.

18. Answer: (D) 55°

The angles of a triangle add up to 180° . Third angle = $180 - 90 - 35 = 55^\circ$.

19. Answer: (A) 36%

$$\frac{9}{25} \times 100 = 36\%$$

20. Answer: (B) 25%

Profit = $600 - 480 = ₹120$. Profit% = $(120 \div 480) \times 100 = 25\%$.

21. Answer: (C) 99 cm^2

$$\text{Area} = \frac{1}{2} \times 18 \times 11 = 99 \text{ cm}^2$$

22. Answer: (D) 132 cm

$$\text{Circumference} = 2\pi r = 2 \times \frac{22}{7} \times 21 = 132 \text{ cm}$$

23. Answer: (C) 38

The range is the difference between the greatest and least values: $50 - 12 = 38$.

24. Answer: (A) Obtuse-angled

When the sum of the squares of the two shorter sides is less than the square of the longest side, the angle opposite the longest side is greater than 90° , making the triangle **obtuse-angled**.

25. Answer: (B) $\frac{5}{13}$

$$2\frac{3}{5} = \frac{13}{5} \text{ . Turning it upside down gives } \frac{5}{13} \text{ .}$$

26. Answer: (B) 36

1 part = $99 \div 11 = 9$. Smaller number = $4 \times 9 = 36$.

27. Answer: (C) ₹1,800

$$\text{SI} = (7500 \times 8 \times 3) \div 100 = ₹1,800$$

28. Answer: (D) $\frac{1}{3}$

Numbers greater than 4 are 5 and 6, that is 2 out of 6 outcomes. $P = \frac{2}{6} = \frac{1}{3}$.

29. Answer: (A) 88

Correct: $32 \times 3 = 96$. Wrong (8): $8 \times (-1) = -8$. Total = $96 - 8 = 88$.

30. Answer: (A) 15°C

$$\text{Fall} = 6 - (-9) = 6 + 9 = 15^\circ \text{C}$$

31. Answer: (B) 6.85×10^6

$68,50,000 = 6,850,000$, which has 7 digits, so its standard form is 6.85×10^6 .

32. Answer: (C) 900 cm^3

$$\text{Volume} = \text{length} \times \text{breadth} \times \text{height} = 15 \times 10 \times 6 = 900 \text{ cm}^3$$

33. Answer: (A) 30

$$18\frac{3}{4} = \frac{75}{4} \text{ . Number of pieces} = \frac{75}{4} \div \frac{5}{8} = \frac{75}{4} \times \frac{8}{5} = 30$$

34. Answer: (B) 4

If the digits are a and b, reversing changes the value by $9(b-a)$. So $9(b-a) = 36$, giving $b-a = 4$.

35. Answer: (D) 20%

Cost = 100, marked = 150, discount = 20% of 150 = 30, selling price = 120. Profit = 20, which is **20%**.

36. Answer: (A) 14 cm

Perimeter of the square = $4 \times 22 = 88$ cm, which becomes the circumference of the circle. $2\pi r = 88$, so $r = 88 \div (2 \times \frac{22}{7}) = 14$ cm.

37. Answer: (B) 14 km

$91 \div 6.5 = 14$ km.

38. Answer: (B) 20

Total books sold = $18 + 22 + 15 + 25 + 20 = 100$. Mean = $100 \div 5 = 20$.

39. Answer: (C) 68 m^2

Area of full rectangle = $10 \times 8 = 80 \text{ m}^2$. Area removed = $4 \times 3 = 12 \text{ m}^2$. Area of the L-shaped room = $80 - 12 = 68 \text{ m}^2$.

40. Answer: (D) 36

Total of 7 numbers = $7 \times 24 = 168$. Total of remaining 6 numbers = $6 \times 22 = 132$. Removed number = $168 - 132 = 36$.

41. Answer: (A) 36

$3^3 \div 3 = 3^2 = 9$. $2^4 \div 2^2 = 2^2 = 4$. Product = $9 \times 4 = 36$.

42. Answer: (D) 30 hours

Net filling rate per hour = $\frac{1}{10} - \frac{1}{15} = \frac{1}{30}$, so the tank fills in **30 hours**.

43. Answer: (C) 8

Let the number of bananas be x , so apples = $x + 3$. $9x + 15(x + 3) = 237$, $24x + 45 = 237$, $24x = 192$, $x = 8$.

44. Answer: (A) 72°

$4x + 5x + 6x = 180$, $15x = 180$, $x = 12$. Largest angle = $6 \times 12 = 72^\circ$.

45. Answer: (B) 24 m

Height = $\sqrt{(25^2 - 7^2)} = \sqrt{(625 - 49)} = \sqrt{576} = 24$ m.

46. Answer: (B) (i) and (iii) only

Statement (ii) is false; subtraction of rational numbers is not commutative, since $a - b$ is generally not equal to $b - a$. Statements (i) and (iii) are true. Hence **(i) and (iii)**.

47. Answer: (C) 8 m below ground

Starting height = 45. After descending 60 m: $45 - 60 = -15$. After rising 25 m: $-15 + 25 = 10$. After descending 18 m: $10 - 18 = -8$, which is **8 m below ground**.

48. Answer: (D) 280 litres

The fill level rose from $\frac{3}{10}$ to $\frac{3}{5}$, an increase of $\frac{3}{5} - \frac{3}{10} = \frac{3}{10}$ of the capacity. This $\frac{3}{10}$ corresponds to the 84 litres added, so the capacity is $84 \times \frac{10}{3} = 280$ litres.

49. Answer: (A) A 2% increase

Let the original price be 100. After a 20% increase it becomes 120. After a 15% decrease it becomes $120 - 18 = 102$. This is a **2% increase** on the original price.

50. Answer: (B) P-2, Q-3, R-4, S-1

P: $3^2 \times 2^3 = 9 \times 8 = 72$, matching List II item 2. Q: $\frac{2}{5}$ of $90 = 36$, matching item 3. R: 25% of $160 = 40$, matching item 4. S:

$\sqrt{196} = 14$, matching item 1. So the correct combination is **P-2, Q-3, R-4, S-1**.