

Full Practice Exam — Set 2

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? 3, 6, 12, 24, 48, ____
 (A) 72 (B) 84
 (C) 96 (D) 108
- Find the **odd one out**: 144, 169, 196, 220
 (A) 144 (B) 169
 (C) 196 (D) 220
- What comes next in the series? AZ, BY, CX, ____
 (A) DW (B) DV
 (C) EW (D) DX
- In a certain code, GARDEN is written as 7-1-18-4-5-14. How is DANGER written in the same code?
 (A) 4-1-14-7-5-18 (B) 4-1-13-7-5-18
 (C) 4-1-14-7-15-18 (D) 14-1-4-7-5-18
- X is Y's brother. Z is Y's mother. How is X related to Z?
 (A) Son (B) Nephew
 (C) Father (D) Grandson
- In a queue of 25 students, Meena is 9th from the front. What is her position from the back?
 (A) 16th (B) 15th
 (C) 18th (D) 17th
- A boy walks 9 m east, then 12 m north. How far is he from his starting point?
 (A) 15 m (B) 21 m
 (C) 3 m (D) 108 m

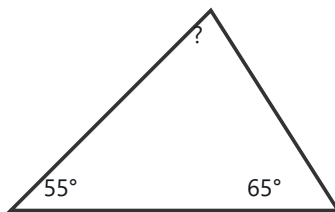
8. A letter has a vertical line of symmetry if its left half is a mirror image of its right half. Which of these letters has a vertical line of symmetry?
- (A) F (B) R
(C) G (D) T
9. $8 : 64 :: 11 : \underline{\hspace{1cm}}$
- (A) 132 (B) 121
(C) 144 (D) 110
10. If 5 March is a Tuesday, what day of the week is 30 March?
- (A) Saturday (B) Friday
(C) Sunday (D) Thursday

Section 2 — Mathematical Reasoning

Q11–Q28 · 1 mark each

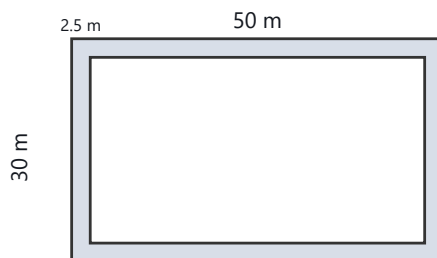
11. $(-18) - (-7) = \underline{\hspace{1cm}}$
- (A) -25 (B) -11
(C) 11 (D) 25
12. The additive inverse of $\frac{-9}{13}$ is $\underline{\hspace{1cm}}$.
- (A) $\frac{-13}{9}$ (B) 0
(C) $\frac{13}{9}$ (D) $\frac{9}{13}$
13. $3^2 \times 3^5 = \underline{\hspace{1cm}}$
- (A) 3^7 (B) 9^7
(C) 3^6 (D) 3^4
14. The standard form of 4,56,00,000 is $\underline{\hspace{1cm}}$.
- (A) 45.6×10^6 (B) 4.56×10^7
(C) 4.56×10^6 (D) 0.456×10^8
15. Two angles whose sum is 180° are called $\underline{\hspace{1cm}}$ angles.
- (A) Complementary (B) Vertically opposite
(C) Adjacent (D) Supplementary
16. The sum of the interior angles of a quadrilateral is $\underline{\hspace{1cm}}$.
- (A) 360° (B) 270°
(C) 540° (D) 180°
17. The solution of $7x + 5 = 4x + 26$ is $x = \underline{\hspace{1cm}}$.
- (A) 5 (B) 6
(C) 7 (D) 9
18. $\frac{7}{20}$ written as a percentage is $\underline{\hspace{1cm}}$.
- (A) 32% (B) 35%
(C) 28% (D) 40%

19. In the triangle shown, two of the angles are marked. What is the size of the third angle?



Triangle with two known angles

- (A) 55° (B) 70°
(C) 65° (D) 60°
20. The reciprocal of $2\frac{1}{4}$ is _____.
(A) $\frac{4}{9}$ (B) $\frac{9}{4}$
(C) $\frac{1}{4}$ (D) $2\frac{4}{9}$
21. The median of the data 12, 15, 9, 15, 18, 15, 21 is _____.
(A) 9 (B) 12
(C) 18 (D) 15
22. A triangle with sides 9 cm, 12 cm and 15 cm is _____.
(A) Equilateral (B) Right-angled
(C) Isosceles (D) Obtuse-angled
23. An article bought for ₹640 is sold for ₹720. The profit per cent is _____.
(A) 10% (B) 15%
(C) 12.5% (D) 20%
24. If the ratio of two numbers is 7 : 9 and their sum is 112, the larger number is _____.
(A) 49 (B) 56
(C) 63 (D) 70
25. The figure shows a rectangular garden 50 m by 30 m with a path of uniform width 2.5 m running along the **inside** of its boundary (shaded). What is the area of the path?



Garden with a path along the inside boundary (shaded)

- (A) 350 m^2 (B) 425 m^2
(C) 400 m^2 (D) 375 m^2

26. The circumference of a circle of diameter 21 cm is _____. (Take $\pi = \frac{22}{7}$.)

- (A) 66 cm (B) 44 cm
(C) 132 cm (D) 33 cm

27. The simple interest on ₹8,000 at 6% per annum for 3 years is _____.

- (A) ₹1,200 (B) ₹1,440
(C) ₹1,600 (D) ₹1,880

28. In an isosceles triangle, each base angle is 50° . What is the vertex angle?

- (A) 50° (B) 70°
(C) 80° (D) 100°

Section 3 — Everyday Mathematics

Q29–Q45 · 1 mark each

29. In a test, +5 marks are given for a correct answer and –3 for a wrong one. Priya attempted 35 out of 50 questions and got 28 right. What was her score?

- (A) 112 (B) 119
(C) 126 (D) 133

30. The temperature at a hill station rose from -8°C to 15°C during the day. By how much did it rise?

- (A) 7°C (B) 15°C
(C) -23°C (D) 23°C

31. The distance from earth to the moon is about 3,84,000 km. In standard form this is _____.

- (A) 3.84×10^5 km (B) 3.84×10^4 km
(C) 38.4×10^4 km (D) 3.84×10^6 km

32. Find the volume of a cuboid with length 12 cm, breadth 8 cm and height 5 cm.

- (A) 380 cm^3 (B) 480 cm^3
(C) 500 cm^3 (D) 420 cm^3

33. A rope is $15\frac{3}{4}$ m long. Pieces of $\frac{3}{8}$ m are cut from it. How many pieces are obtained?

- (A) 36 (B) 40
(C) 42 (D) 48

34. The digits of a two-digit number are reversed, and the new number is 27 more than the original. What is the difference between the digits?

- (A) 2 (B) 3
(C) 4 (D) 9

35. A shopkeeper marks a fan at 60% above its cost price of ₹1,500 and then allows a discount of 30% on the marked price. What is his profit per cent?

- (A) 8% (B) 10%
(C) 12% (D) 18%

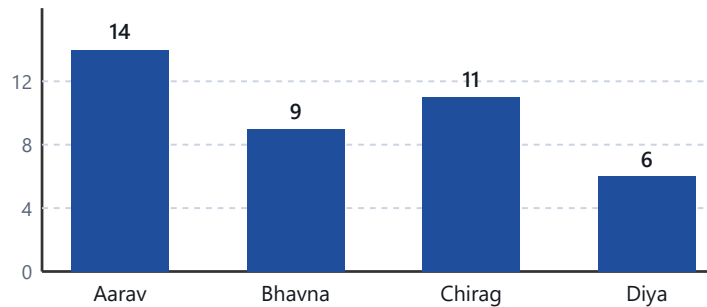
36. A wire is bent into a rectangle 18 cm by 12 cm. It is then straightened and bent into a square. What is the side of the square?

- (A) 20 cm (B) 12 cm
(C) 14 cm (D) 15 cm

37. A car covers 108 km using 7.2 litres of petrol. How far does it travel on 1 litre?

- (A) 15 km (B) 12 km
(C) 18 km (D) 20 km

38. The bar graph shows the number of books read by four students last month. What is the mean number of books read?



Books read by four students last month

- (A) 9 (B) 10
(C) 11 (D) 12

39. The mean of 6 numbers is 28. If one number is removed, the mean of the remaining 5 numbers becomes 26. What was the number removed?

- (A) 34 (B) 36
(C) 38 (D) 40

40. A cistern can be filled in 8 hours by one pipe and emptied in 12 hours by another. If both are opened together, how long will it take to fill the empty cistern?

- (A) 20 hours (B) 24 hours
(C) 30 hours (D) 28 hours

41. A vendor sells oranges at ₹5 each and mangoes at ₹8 each. He sold 6 more mangoes than oranges and collected ₹165 in all. How many oranges did he sell?

- (A) 7 (B) 8
(C) 9 (D) 10

42. The angles of a triangle are in the ratio 3 : 4 : 5. What is the smallest angle?

- (A) 36° (B) 40°
(C) 45° (D) 60°

43. A bag holds 5 red, 7 blue and 8 green marbles. One marble is drawn at random. What is the probability that it is **not** red?

- (A) $\frac{2}{5}$ (B) $\frac{7}{20}$
(C) $\frac{1}{4}$ (D) $\frac{3}{4}$

44. 10 workers can finish a job in 18 days. How long would 15 workers of the same ability take?

- (A) 12 days (B) 10 days
(C) 15 days (D) 20 days

45. A ladder 17 m long leans against a wall with its foot 8 m from the wall. How high up the wall does it reach?

- (A) 12 m (B) 15 m
(C) 13 m (D) 16 m

Achievers Section

Q46–Q50 · 3 marks each

46. Consider the following statements.

- (i) The reciprocal of a negative rational number is always negative.
(ii) Every integer is also a rational number.
(iii) The sum of a rational number and its additive inverse is always 1.

Which of the statements is/are correct?

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

47. A submarine is at a depth of 25 m below sea level (sea level = 0, depths taken as negative). It rises 10 m, dives a further 18 m, and then rises 6 m. What is its final position relative to sea level?

- (A) 19 m below sea level (B) 33 m below sea level
(C) 27 m below sea level (D) 21 m below sea level

48. A tank is $\frac{3}{8}$ full of water. After 100 litres are drained out, it becomes $\frac{1}{8}$ full. What is the capacity of the tank?

- (A) 380 litres (B) 420 litres
(C) 350 litres (D) 400 litres

49. The price of an item is increased by 30% and then decreased by 10%. What is the net percentage change in the price?

- (A) A 17% increase (B) No change
(C) A 20% increase (D) A 17% decrease

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	$2^3 \times 2^2$	1	45
Q	$\frac{3}{4}$ of 60	2	15
R	15% of 200	3	30
S	$\sqrt{225}$	4	32

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

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

Answer Key

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

Solutions

1. Answer: (C) 96

Each term is double the previous term: 3, 6, 12, 24, 48, so the next term is $48 \times 2 = 96$.

2. Answer: (D) 220

$144 = 12^2$, $169 = 13^2$ and $196 = 14^2$ are perfect squares. **220** is not, so it is the odd one out.

3. Answer: (A) DW

The first letter moves forward through the alphabet: A, B, C, **D**. The second letter moves backward: Z, Y, X, **W**. So the next pair is **DW**.

4. Answer: (A) 4-1-14-7-5-18

Each letter is coded by its position in the alphabet.

D=4, A=1, N=14, G=7, E=5, R=18, giving **4-1-14-7-5-18**.

5. Answer: (A) Son

Since Z is Y's mother and X is Y's brother, X is also Z's child, that is, Z's **son**.

6. Answer: (D) 17th

Position from the back = total – position from the front + 1 = $25 - 9 + 1 = 17\text{th}$.

7. Answer: (A) 15 m

The two paths meet at a right angle.

Distance = $\sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15 \text{ m}$.

8. Answer: (D) T

Reflecting each letter left-to-right, only **T** looks exactly the same on both sides; F, G and R do not match their own mirror image.

9. Answer: (B) 121

The second number is the square of the first: $8^2 = 64$. So $11^2 = 121$.

10. Answer: (A) Saturday

From 5 March to 30 March is 25 days. Since $25 = 3 \times 7 + 4$, this is 3 full weeks plus 4 extra days.

Counting on from Tuesday: Wednesday, Thursday, Friday, **Saturday**.

11. Answer: (B) -11

Subtracting a negative is the same as adding its positive: $-18 - (-7) = -18 + 7 = -11$.

12. Answer: (D) $\frac{9}{13}$

$\frac{-9}{13} + \frac{9}{13} = 0$, so the additive inverse is $\frac{9}{13}$.

13. Answer: (A) 3^7

Adding exponents: $3^{2+5} = 3^7$.

14. Answer: (B) 4.56×10^7

4,56,00,000 = 45,600,000 has 8 digits, so in standard form it is **4.56×10^7** .

15. Answer: (D) Supplementary

Supplementary angles add up to 180° .

16. Answer: (A) 360°

The interior angles of any quadrilateral add up to **360°** .

17. Answer: (C) 7

$7x - 4x = 26 - 5$, $3x = 21$, $x = 7$.

18. Answer: (B) 35%

$$\frac{7}{20} \times 100 = \mathbf{35\%}.$$

19. Answer: (D) 60°

The angles of a triangle add up to 180°. Third angle = $180 - 55 - 65 = \mathbf{60^\circ}$.

20. Answer: (A) $\frac{4}{9}$

$2\frac{1}{4} = \frac{9}{4}$. Turning it upside down gives $\frac{4}{9}$.

21. Answer: (D) 15

Arranging in order: 9, 12, 15, 15, 15, 18, 21. The middle (4th) value is **15**.

22. Answer: (B) Right-angled

$9^2 + 12^2 = 81 + 144 = 225 = 15^2$, so it is **right-angled**.

23. Answer: (C) 12.5%

Profit = $720 - 640 = 80$. Profit% = $(80 \div 640) \times 100 = \mathbf{12.5\%}$.

24. Answer: (C) 63

1 part = $112 \div 16 = 7$. Larger number = $9 \times 7 = \mathbf{63}$.

25. Answer: (D) 375 m²

Outer area = $50 \times 30 = 1500$ m². Inner lawn = $(50 - 2 \times 2.5) \times (30 - 2 \times 2.5) = 45 \times 25 = 1125$ m². Path area = $1500 - 1125 = \mathbf{375}$ m².

26. Answer: (A) 66 cm

Circumference = $\pi d = \frac{22}{7} \times 21 = \mathbf{66}$ cm.

27. Answer: (B) ₹1,440

SI = $(8000 \times 6 \times 3) \div 100 = \mathbf{₹1,440}$.

28. Answer: (C) 80°

Let the vertex angle be x . $2 \times 50 + x = 180$, so $x = \mathbf{80^\circ}$.

29. Answer: (B) 119

Correct: $28 \times 5 = 140$. Wrong (7): $7 \times (-3) = -21$. Total = $140 - 21 = \mathbf{119}$.

30. Answer: (D) 23 °C

Rise = $15 - (-8) = 15 + 8 = \mathbf{23^\circ C}$.

31. Answer: (A) 3.84×10^5 km

3,84,000 = 384,000 has 6 digits, so in standard form it is $\mathbf{3.84 \times 10^5}$ km.

32. Answer: (B) 480 cm³

Volume = length $\times$ breadth $\times$ height = $12 \times 8 \times 5 = \mathbf{480}$ cm³.

33. Answer: (C) 42

$15\frac{3}{4} = \frac{63}{4}$. Number of pieces = $\frac{63}{4} \div \frac{3}{8} = \frac{63}{4} \times \frac{8}{3} = \mathbf{42}$.

34. Answer: (B) 3

If the digits are a and b , reversing changes the value by $9(b-a)$. So $9(b-a) = 27$, giving $b-a = \mathbf{3}$.

35. Answer: (C) 12%

Marked price = $1500 + 60\% \text{ of } 1500 = ₹2,400$. Discount = $30\% \text{ of } 2400 = ₹720$. Selling price = $2400 - 720 = ₹1,680$. Profit = $1680 - 1500 = ₹180$, which is $(180 \div 1500) \times 100 = \mathbf{12\%}$.

36. Answer: (D) 15 cm

Perimeter of the rectangle = $2 \times (18+12) = 60$ cm. This is also the perimeter of the square, so each side = $60 \div 4 = 15$ cm.

37. Answer: (A) 15 km

$108 \div 7.2 = 15$ km.

38. Answer: (B) 10

Total books read = $14+9+11+6=40$. Mean = $40 \div 4 = 10$.

39. Answer: (C) 38

Total of 6 numbers = $6 \times 28 = 168$. Total of remaining 5 = $5 \times 26 = 130$. Removed number = $168 - 130 = 38$.

40. Answer: (B) 24 hours

Net filling rate per hour = $\frac{1}{8} - \frac{1}{12} = \frac{1}{24}$, so the cistern fills in **24 hours**.

41. Answer: (C) 9

Let the number of oranges be x, so mangoes = $x+6$. $5x+8(x+6)=165$, $13x+48=165$, $13x=117$, $x=9$.

42. Answer: (C) 45°

$3x+4x+5x=180$, $12x=180$, $x=15$. Smallest angle = $3 \times 15 = 45^\circ$.

43. Answer: (D) $\frac{3}{4}$

Not red = $7+8=15$ out of 20. $P = \frac{15}{20} = \frac{3}{4}$.

44. Answer: (A) 12 days

$10 \times 18 = 15 \times d$, $d = 12$ days.

45. Answer: (B) 15 m

Height = $\sqrt{(17^2 - 8^2)} = \sqrt{(289 - 64)} = \sqrt{225} = 15$ m.

46. Answer: (C) (i) and (ii) only

Statement (iii) is false; the sum of a rational number and its additive inverse is always 0, not 1. Statements (i) and (ii) are true. Hence **(i) and (ii)**.

47. Answer: (C) 27 m below sea level

Starting position = -25 . After rising 10 m: $-25+10=-15$. After diving 18 m: $-15-18=-33$. After rising 6 m: $-33+6=-27$, which is **27 m below sea level**.

48. Answer: (D) 400 litres

The fill level dropped from $\frac{3}{8}$ to $\frac{1}{8}$, a decrease of $\frac{3}{8} - \frac{1}{8} = \frac{1}{4}$ of the capacity. This $\frac{1}{4}$ corresponds to the 100 litres drained, so the capacity is $100 \times 4 = 400$ litres.

49. Answer: (A) A 17% increase

Let the original price be 100. After a 30% increase it becomes 130. After a 10% decrease it becomes $130 - 13 = 117$. This is a **17% increase** on the original price.

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

P: $2^3 \times 2^2 = 2^5 = 32$, which matches List II item 4. Q: $\frac{3}{4}$ of $60 = 45$, which matches item 1. R: 15% of $200 = 30$, which matches item 3. S: $\sqrt{225} = 15$, which matches item 2. So the correct combination is **P-4, Q-1, R-3, S-2**.