

# Full Practice Exam — Set 1

Mathematics · Class 7 · Full Syllabus Practice Exam

|                    |                 |                   |                        |
|--------------------|-----------------|-------------------|------------------------|
| TIME<br>60 minutes | QUESTIONS<br>50 | TOTAL MARKS<br>60 | MAX. SCORE<br>___ / 60 |
|--------------------|-----------------|-------------------|------------------------|

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? 1, 1, 2, 3, 5, 8, \_\_\_\_  
 (A) 11 (B) 12  
 (C) 13 (D) 16
- Find the **odd one out**: 121, 169, 200, 225  
 (A) 121 (B) 169  
 (C) 200 (D) 225
- What comes next in the series? BD, DH, FL, \_\_\_\_  
 (A) HN (B) HO  
 (C) GP (D) HP
- In a certain code, LISTEN is written as 12-9-19-20-5-14. How is SILENT written in the same code?  
 (A) 18-9-12-5-14-20 (B) 19-9-12-5-15-20  
 (C) 19-9-11-5-14-20 (D) 19-9-12-5-14-20
- A is B's sister. C is B's mother. D is C's father. E is D's mother. How is A related to D?  
 (A) Grandmother (B) Sister  
 (C) Daughter (D) Granddaughter
- In a row of 30 students, Vikas is 12th from the left end. What is his position from the right end?  
 (A) 19th (B) 18th  
 (C) 17th (D) 20th
- A cyclist rides 6 km west, then 8 km north. How far is he from his starting point?  
 (A) 2 km (B) 10 km  
 (C) 14 km (D) 48 km
- Which of the digits below looks **unchanged** when turned upside down (rotated 180°)?  
 (A) 6 (B) 7  
 (C) 8 (D) 9

9.  $9 : 81 :: 12 : \underline{\hspace{2cm}}$

(A) 108

(C) 144

(B) 132

(D) 156

10. If 1 May is a Friday, what day of the week is 27 May?

(A) Saturday

(C) Friday

(B) Thursday

(D) Wednesday

## Section 2 — Mathematical Reasoning

Q11–Q28 · 1 mark each

11.  $(-15) \div (-3) = \underline{\hspace{2cm}}$

(A) 5

(C) -45

(B) -5

(D) 45

12. The additive inverse of  $\frac{-7}{11}$  is  $\underline{\hspace{2cm}}$ .

(A)  $\frac{-11}{7}$

(C)  $\frac{11}{7}$

(B)  $\frac{7}{11}$

(D) 0

13.  $2^5 \times 2^3 = \underline{\hspace{2cm}}$

(A)  $2^2$

(C)  $4^8$

(B)  $2^{15}$

(D)  $2^8$

14. The standard form of 3,20,00,000 is  $\underline{\hspace{2cm}}$ .

(A)  $3.2 \times 10^7$

(C)  $3.2 \times 10^6$

(B)  $32 \times 10^6$

(D)  $0.32 \times 10^8$

15. The solution of  $5x - 8 = 3x + 12$  is  $x = \underline{\hspace{2cm}}$ .

(A) 2

(C) 10

(B) 6

(D) 20

16. Two angles whose sum is  $90^\circ$  are called  $\underline{\hspace{2cm}}$  angles.

(A) Supplementary

(C) Vertically opposite

(B) Complementary

(D) Adjacent

17. An exterior angle of a triangle equals the sum of the  $\underline{\hspace{2cm}}$ .

(A) Other two exterior angles

(C) Two adjacent angles

(B) Three interior angles

(D) Two interior opposite angles

18.  $\frac{3}{8}$  written as a percentage is  $\underline{\hspace{2cm}}$ .

(A) 37.5%

(C) 38%

(B) 30%

(D) 83%

19. An article bought for ₹750 is sold for ₹900. The profit per cent is  $\underline{\hspace{2cm}}$ .

(A) 15%

(C)  $16\frac{2}{3}\%$

(B) 20%

(D) 25%

20. The area of a triangle with base 14 cm and height 9 cm is \_\_\_\_\_.  
 (A)  $252 \text{ cm}^2$  (B)  $126 \text{ cm}^2$   
 (C)  $23 \text{ cm}^2$  (D)  $63 \text{ cm}^2$
21. The circumference of a circle of radius 7 cm is \_\_\_\_\_. (Take  $\pi = \frac{22}{7}$ .)  
 (A) 44 cm (B) 22 cm  
 (C) 154 cm (D) 49 cm
22. The mode of the data 5, 7, 3, 7, 9, 7, 5 is \_\_\_\_\_.  
 (A) 3 (B) 5  
 (C) 7 (D) 9
23. A triangle with sides 3 cm, 4 cm and 5 cm is \_\_\_\_\_.  
 (A) Equilateral (B) Right-angled  
 (C) Isosceles (D) Obtuse-angled
24. The reciprocal of  $1\frac{2}{3}$  is \_\_\_\_\_.  
 (A)  $1\frac{3}{2}$  (B)  $\frac{5}{3}$   
 (C)  $\frac{2}{3}$  (D)  $\frac{3}{5}$
25. If the ratio of two numbers is 5 : 8 and their sum is 91, the smaller number is \_\_\_\_\_.  
 (A) 35 (B) 42  
 (C) 49 (D) 56
26. The simple interest on ₹6,000 at 9% per annum for 2 years is \_\_\_\_\_.  
 (A) ₹1,080 (B) ₹540  
 (C) ₹1,200 (D) ₹1,620
27. The probability of getting an odd number when a fair die is rolled once is \_\_\_\_\_.  
 (A)  $\frac{1}{6}$  (B)  $\frac{1}{2}$   
 (C)  $\frac{1}{3}$  (D)  $\frac{2}{3}$
28. In an isosceles triangle, the vertex angle is  $40^\circ$ . What is each base angle?  
 (A)  $40^\circ$  (B)  $60^\circ$   
 (C)  $70^\circ$  (D)  $140^\circ$

### Section 3 — Everyday Mathematics

Q29–Q45 · 1 mark each

29. In a test, +4 marks are given for a correct answer, –2 for a wrong one. Ravi attempted 30 out of 40 and got 22 right. What was his score?  
 (A) 72 (B) 74  
 (C) 80 (D) 88
30. The temperature at a hill station fell from  $8^\circ\text{C}$  to  $-5^\circ\text{C}$  overnight. By how much did it fall?  
 (A)  $3^\circ\text{C}$  (B)  $5^\circ\text{C}$   
 (C)  $-13^\circ\text{C}$  (D)  $13^\circ\text{C}$

31. A rope is  $12\frac{1}{2}$  m long. Pieces of  $\frac{5}{8}$  m are cut from it. How many pieces are obtained?
- (A) 16 (B) 18  
(C) 20 (D) 25
32. A distance from earth to sun is about 15,00,00,000 km. In standard form this is \_\_\_\_.
- (A)  $1.5 \times 10^8$  km (B)  $15 \times 10^7$  km  
(C)  $1.5 \times 10^7$  km (D)  $1.5 \times 10^9$  km
33. A shopkeeper marks his goods 40% above cost price and then allows a discount of 25%. What is his profit per cent?
- (A) 10% (B) 5%  
(C) 15% (D) 20%
34. A wire is bent into a circle of radius 14 cm. It is then straightened and bent into a square. What is the side of the square? (Take  $\pi = \frac{22}{7}$ .)
- (A) 11 cm (B) 44 cm  
(C) 22 cm (D) 88 cm
35. A car covers 84.5 km on 6.5 litres of petrol. How far does it go on 1 litre?
- (A) 12 km (B) 15 km  
(C) 14 km (D) 13 km
36. The digits of a two-digit number are reversed, and the new number is 45 more than the original. What is the difference between the digits?
- (A) 3 (B) 4  
(C) 5 (D) 9
37. A rectangular field 60 m by 40 m has a path 2 m wide running around it on the outside. What is the area of the path?
- (A) 416 m<sup>2</sup> (B) 432 m<sup>2</sup>  
(C) 448 m<sup>2</sup> (D) 480 m<sup>2</sup>
38. The mean of five numbers is 32. If one number is removed, the mean of the remaining four is 30. What was the number removed?
- (A) 36 (B) 38  
(C) 40 (D) 42
39. Find the value of  $\frac{(2^5 \times 3^3)}{(2^3 \times 3^2)}$ .
- (A) 6 (B) 12  
(C) 18 (D) 24
40. A cistern can be filled in 6 hours by one pipe and emptied in 9 hours by another. If both are opened together, how long to fill the empty cistern?
- (A) 15 hours (B) 18 hours  
(C) 3 hours (D) 12 hours
41. A shopkeeper sells pens at ₹15 each and notebooks at ₹40 each. He sold 5 more notebooks than pens and collected ₹640. How many pens did he sell?
- (A) 6 (B) 8  
(C) 10 (D) 12

42. The angles of a triangle are in the ratio 2 : 3 : 4. The largest angle is \_\_\_\_.
- (A)  $40^\circ$  (B)  $60^\circ$   
(C)  $80^\circ$  (D)  $120^\circ$
43. A ladder 13 m long leans against a wall with its foot 5 m from the wall. How high up the wall does it reach?
- (A) 8 m (B) 10 m  
(C) 18 m (D) 12 m
44. A bag holds 4 red, 6 blue and 5 green marbles. One marble is drawn at random. What is the probability it is **not** blue?
- (A)  $\frac{9}{15}$  (B)  $\frac{6}{15}$   
(C)  $\frac{4}{15}$  (D)  $\frac{5}{15}$
45. 8 workers can paint a wall in 15 days. How long would 12 workers of the same ability take?
- (A) 8 days (B) 10 days  
(C) 12 days (D) 20 days

### Achievers Section

Q46–Q50 · 3 marks each

46. Consider the following statements.
- (i) The sum of two negative integers is always negative.  
(ii) Zero is neither positive nor negative.  
(iii) The product of a positive and a negative integer is always positive.
- Which of the statements is/are correct?
- (A) (i) and (ii) only (B) (ii) and (iii) only  
(C) (i) and (iii) only (D) All three
47. A lift starts at the 8th floor, goes down 12 floors, then up 5, then down 4. Where does it stop (ground floor = 0, basements negative)?
- (A) 3rd floor (B) 1st basement  
(C) 3rd basement (D) Ground floor
48. A tank is  $\frac{2}{7}$  full. After 60 litres are added it becomes  $\frac{4}{7}$  full. What is the capacity of the tank?
- (A) 140 litres (B) 180 litres  
(C) 240 litres (D) 210 litres
49. The price of an article is increased by 25% and then decreased by 20%. What is the net change?
- (A) No change (B) A 5% increase  
(C) A 5% decrease (D) A 45% increase
50. The mean of 10 numbers is 45. One number was misread as 25 instead of 52. What is the correct mean?
- (A) 45.7 (B) 47.7  
(C) 46.5 (D) 48.2

## Answer Key

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

## Solutions

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**1. Answer: (C)** 13

Each number is the sum of the two before it (the Fibonacci pattern):  $1+1=2$ ,  $1+2=3$ ,  $2+3=5$ ,  $3+5=8$ ,  $5+8=13$ .

**2. Answer: (C)** 200

$121=11^2$ ,  $169=13^2$  and  $225=15^2$  are perfect squares. **200** is not, so it is the odd one out.

**3. Answer: (D)** HP

The first letter jumps by 2 each time: B, D, F, **H**. The second letter jumps by 4 each time: D, H, L, **P**. So the next pair is **HP**.

**4. Answer: (D)** 19-9-12-5-14-20

Each letter is replaced by its position in the alphabet.

S=19, I=9, L=12, E=5, N=14, T=20, giving **19-9-12-5-14-20**.

**5. Answer: (D)** Granddaughter

D is C's father, so D is B's grandfather, and since A is B's sister, A is also D's **granddaughter**.

**6. Answer: (A)** 19th

Position from the right = total – position from left + 1 =  $30 - 12 + 1 = 19\text{th}$ .

**7. Answer: (B)** 10 km

The paths form a right angle.

Distance =  $\sqrt{6^2+8^2} = \sqrt{36+64} = \sqrt{100} = 10 \text{ km}$ .

**8. Answer: (C)** 8

Turning a digit through  $180^\circ$  is the same as reflecting it both left-right and top-to-bottom. **8** is made of two symmetrical loops stacked on top of each other, so it looks exactly the same upside down. 6 turns into 9 and 9 turns into 6, while 7 does not match any digit.

**9. Answer: (C)** 144

The second number is the first squared:  $9^2=81$ . So  $12^2 = 144$ .

**10. Answer: (D)** Wednesday

27 May is 26 days after 1 May. Since  $26 = 3 \times 7 + 5$ , this is 3 full weeks plus 5 extra days.

Counting on from Friday: Saturday, Sunday, Monday, Tuesday, **Wednesday**.

**11. Answer: (A)** 5

A negative divided by a negative gives a positive.  $15 \div 3 = 5$ .

**12. Answer: (B)**  $\frac{7}{11}$

$\frac{-7}{11} + \frac{7}{11} = 0$ , so the additive inverse is  $\frac{7}{11}$ .

**13. Answer: (D)**  $2^8$

Adding exponents:  $2^{5+3}=2^8$ .

**14. Answer: (A)**  $3.2 \times 10^7$

3,20,00,000 has 8 digits, so  **$3.2 \times 10^7$** .

**15. Answer: (C)** 10

$5x-3x=12+8$ ,  $2x=20$ ,  $x=10$ .

**16. Answer: (B)** Complementary

**Complementary** angles add up to  $90^\circ$ .

**17. Answer: (D)** Two interior opposite angles

An exterior angle equals the sum of the **two interior opposite angles**.

**18. Answer: (A)** 37.5%

$$\frac{3}{8} \times 100 = \mathbf{37.5\%}.$$

**19. Answer: (B)** 20%

$$\text{Profit} = 150. \text{ Profit}\% = (150 \div 750) \times 100 = \mathbf{20\%}.$$

**20. Answer: (D)** 63 cm<sup>2</sup>

$$\text{Area} = \frac{1}{2} \times 14 \times 9 = \mathbf{63 \text{ cm}^2}.$$

**21. Answer: (A)** 44 cm

$$\text{Circumference} = 2\pi r = 2 \times \frac{22}{7} \times 7 = \mathbf{44 \text{ cm}}.$$

**22. Answer: (C)** 7

7 appears three times, more than any other value, so the mode is **7**.

**23. Answer: (B)** Right-angled

$$3^2 + 4^2 = 25 = 5^2, \text{ so it is } \mathbf{\text{right-angled}}.$$

**24. Answer: (D)**  $\frac{3}{5}$

$$1\frac{2}{3} = \frac{5}{3}. \text{ Turning it upside down gives } \mathbf{\frac{3}{5}}.$$

**25. Answer: (A)** 35

$$1 \text{ part} = 91 \div 13 = 7. \text{ Smaller} = 5 \times 7 = \mathbf{35}.$$

**26. Answer: (A)** ₹1,080

$$\text{SI} = (6000 \times 9 \times 2) \div 100 = \mathbf{₹1,080}.$$

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

$$\text{Odd numbers } 1, 3, 5 = 3 \text{ out of } 6. P = \mathbf{\frac{1}{2}}.$$

**28. Answer: (C)** 70°

$$40 + 2x = 180, x = \mathbf{70^\circ}.$$

**29. Answer: (A)** 72

$$\text{Correct: } 22 \times 4 = 88. \text{ Wrong (8): } 8 \times (-2) = -16. \text{ Total} = 88 - 16 = \mathbf{72}.$$

**30. Answer: (D)** 13 °C

$$8 - (-5) = 8 + 5 = \mathbf{13 \text{ }^\circ\text{C}}.$$

**31. Answer: (C)** 20

$$12\frac{1}{2} = \frac{25}{2}. \text{ Pieces} = \frac{25}{2} \div \frac{5}{8} = \frac{25}{2} \times \frac{8}{5} = \mathbf{20}.$$

**32. Answer: (A)**  $1.5 \times 10^8$  km

This 9-digit number, in standard form, is  **$1.5 \times 10^8$  km**.

**33. Answer: (B)** 5%

$$\text{Cost } 100, \text{ marked } 140, \text{ discount } 35, \text{ SP} = 105. \text{ Profit} = 5, \text{ which is } \mathbf{5\%}.$$

**34. Answer: (C)** 22 cm

$$\text{Circumference} = 88 \text{ cm. Square side} = 88 \div 4 = \mathbf{22 \text{ cm}}.$$

**35. Answer: (D)** 13 km

$$84.5 \div 6.5 = \mathbf{13 \text{ km}}.$$

**36. Answer: (C)** 5

$$9(b-a)=45, \text{ so } b-a=5.$$

**37. Answer: (A)**  $416 \text{ m}^2$

$$\text{Outer area}=64 \times 44=2816. \text{ Inner}=2400. \text{ Path}=\mathbf{416 \text{ m}^2}.$$

**38. Answer: (C)** 40

$$\text{Total}_5=160, \text{ total}_4=120. \text{ Removed}=\mathbf{40}.$$

**39. Answer: (B)** 12

$$2^5 \div 2^3=4, 3^3 \div 3^2=3. \text{ Product}=\mathbf{12}.$$

**40. Answer: (B)** 18 hours

$$\text{Net rate per hour} = \frac{1}{6} - \frac{1}{9} = \frac{1}{18}, \text{ so it takes } \mathbf{18 \text{ hours}}.$$

**41. Answer: (B)** 8

$$15x+40(x+5)=640, 55x=440, x=\mathbf{8}.$$

**42. Answer: (C)**  $80^\circ$

$$9x=180, x=20. \text{ Largest}=4x=\mathbf{80^\circ}.$$

**43. Answer: (D)** 12 m

$$\text{height}=\sqrt{(169-25)}=\sqrt{144}=\mathbf{12 \text{ m}}.$$

**44. Answer: (A)**  $\frac{9}{15}$

$$\text{Not blue} = 4+5=9 \text{ out of } 15. P=\mathbf{\frac{9}{15}}.$$

**45. Answer: (B)** 10 days

$$8 \times 15=12 \times d, d=\mathbf{10 \text{ days}}.$$

**46. Answer: (A)** (i) and (ii) only

Statement (iii) is false; positive  $\times$  negative is always negative. Statements (i) and (ii) are true. Hence **(i) and (ii)**.

**47. Answer: (C)** 3rd basement

$$8-12=-4, -4+5=1, 1-4=-3, \text{ which is the } \mathbf{3\text{rd basement}}.$$

**48. Answer: (D)** 210 litres

$$\frac{2}{7} \text{ of capacity} = 60, \text{ so capacity} = \mathbf{210 \text{ litres}}.$$

**49. Answer: (A)** No change

$$100 \rightarrow 125 \rightarrow 100. \mathbf{\text{No change}}.$$

**50. Answer: (B)** 47.7

$$\text{Correct total} = 450+27=477. \text{ Correct mean} = 477 \div 10=\mathbf{47.7}.$$