CTET Mathematics Practice Test

Paper I (For Classes I–V)

General Instructions

Practice Test - 02

1. This paper contains a total of **30 questions**.
2. All questions are **compulsory**.
3. Each question carries **1 mark**.
4. There is **no negative marking**.
5. The maximum marks for this test are **30**.
6. The total duration of the test is **45 minutes**.
7. Choose the most appropriate answer from the given options.
8. Use of calculators, mobile phones, or any electronic devices is **not permitted**.
9. Rough work may be done on the space provided at the end of the paper.
10. Read each question carefully before answering.

All the Best!

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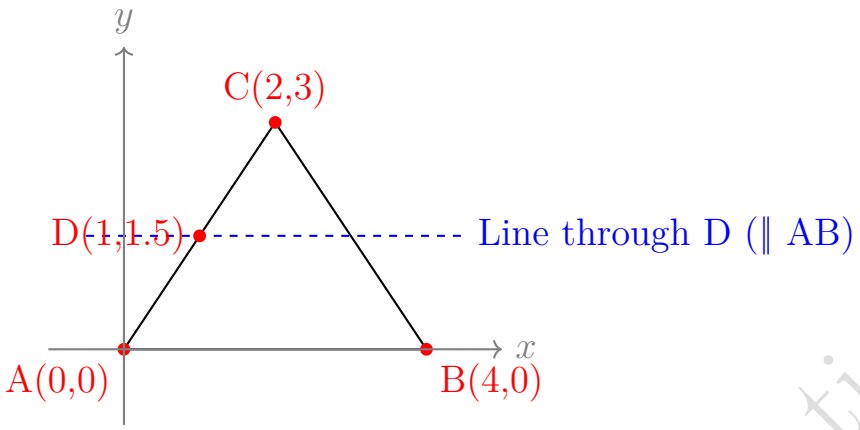
1. **Answer: (c) 5:24**

   Solution: Perimeter = 2(l + b) = 2(12 + 8) = 2 × 20 = 40 m. Area = l × b = 12 × 8 = 96 sq m. Ratio of perimeter to area = 40 : 96 = 5 : 12.

2. **Answer: (b) Using paper folding and cutting activities**

   Solution: Paper folding and cutting activities provide concrete, hands-on experiences that help young learners visualize fractions as parts of a whole, making abstract concepts more accessible and meaningful.



3. **Answer: (b) 1:4**

   Solution: Height of original triangle = 3 units. Height of smaller triangle = 1.5 units. Ratio of heights = 1.5 : 3 = 1 : 2. For similar triangles, ratio of areas = (ratio of corresponding sides)^2 = $(1:2)^2$ = 1 : 4.

4. **Answer: (c) 50**

   Solution: Let the number be x. Then $\frac{3}{5}x = 45$, so $x = 45 \times \frac{5}{3} = 75$. $\frac{2}{3}$ of $x = \frac{2}{3} \times 75 = 50$.

5. **Answer: (c) Creating models using clay or nets**

   Solution: Creating models allows students to physically manipulate and construct 3D shapes, developing spatial visualization skills and deeper understanding of faces, edges, and vertices.

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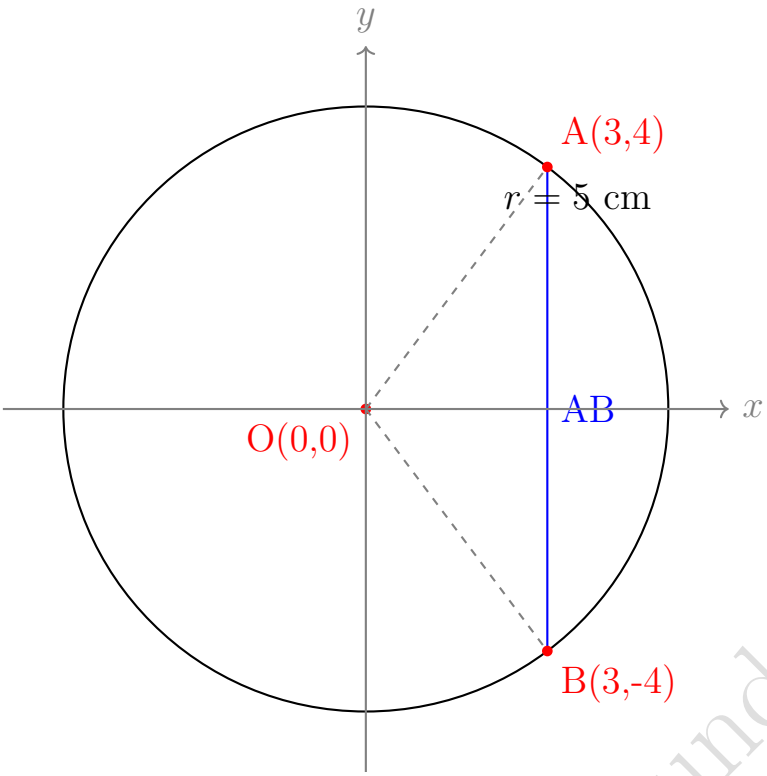
6. **Answer: (b) 26**

   Solution: Let the three consecutive even numbers be (x - 2), x, (x + 2). Their sum = (x - 2) + x + (x + 2) = 3x = 78. Therefore, x = 26, which is the middle number.



7. **Answer: (b) 8 cm**

   Solution: Points A and B have same x-coordinate (3), so chord AB is vertical. Length = difference in y-coordinates = 4 - (-4) = 8 cm. We can verify using distance formula: $\sqrt{(3-3)^2+(4-(-4))^2} = \sqrt{0+8^2} = 8$ cm.

8. **Answer: (b) Explain the concept using base-ten blocks**

   Solution: Base-ten blocks provide concrete representation of place value, helping students visualize why carrying over is necessary when ten ones become one ten, addressing the conceptual misunderstanding rather than just practicing the procedure.

9. **Answer: (c) 96 cm**

   Solution: Side of original square = $\sqrt{144}$ = 12 cm. New side = $12 \times 2 = 24$ cm. New perimeter = $4 \times 24 = 96$ cm.

10. **Answer: (c) 61**

    Solution: First term: 5. Second: $5 \times 2 + 3 = 13$. Third: $13 \times 2 + 3 = 29$. Fourth: $29 \times 2 + 3 = 61$.

11. **Answer: (c) 72**

    Solution: Volume of cuboid = $6 \times 4 \times 3 = 72$ cm^3. Volume of 1 cm cube = 1 cm^3. Number of cubes = $72 \div 1 = 72$.

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12. **Answer: (b) Starting with non-standard units like hand spans**

    Solution: Young children understand measurement better through direct comparison using body parts or objects, which leads to understanding the need for standard units when they discover inconsistencies in non-standard measurements.

13. **Answer: (c) 36**

    Solution: Using the relationship: Product of two numbers = HCF × LCM. Therefore, $216 = 6 \times \text{LCM}$. LCM $= 216 \div 6 = 36$.

14. **Answer: (a) 3**

    Solution: Number of complete symbols = floor$(18 \div 5) = 3$ complete symbols (representing 15 books). The remaining 3 books cannot be shown as a complete symbol.

15. **Answer: (c) Right angled**

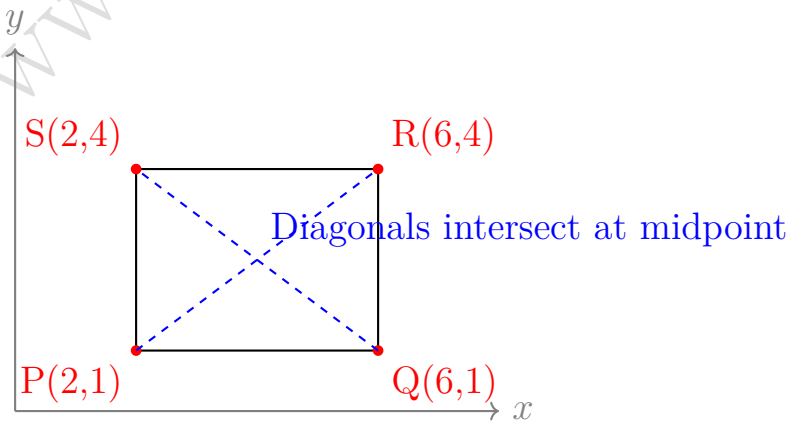
    Solution: Check using Pythagoras theorem: $7^2 + 24^2 = 49 + 576 = 625 = 25^2$. Since it satisfies $a^2 + b^2 = c^2$, it is a right-angled triangle.

16. **Answer: (b) Concrete to abstract progression**

    Solution: Equal sharing is a real-life context that children understand intuitively, allowing them to grasp the meaning of division concretely before moving to abstract symbols and algorithms.

17. **Answer: (b) 5 hours**

    Solution: Speed = 120 km ÷ 2 h = 60 km/h. Time for 300 km = 300 km ÷ 60 km/h = 5 hours.



18. **Answer: (a) 12 square units**

Solution: Length PQ = 6 - 2 = 4 units. Width PS = 4 - 1 = 3 units. Area = length × width = 4 × 3 = 12 square units.

19. **Answer: (b) Use visual fraction strips to compare**

Solution: Visual representations allow the student to see that $\frac{2}{3}$ is actually larger than $\frac{1}{2}$ by comparing lengths or areas, addressing the misconception that larger denominators always mean smaller fractions.

20. **Answer: (c) 185**

Solution: LCM of 12, 15, 18 = 180. Required number = LCM + remainder = 180 + 5 = 185. Check: 185 ÷ 12 = 15 remainder 5; 185 ÷ 15 = 12 remainder 5; 185 ÷ 18 = 10 remainder 5.

21. **Answer: (c) 40**

Solution: Number of students = height of bar × scale = 8 cm × 5 students/cm = 40 students.

22. **Answer: (b) Paper cutting and folding**

Solution: Paper folding allows students to discover symmetry hands-on by creating mirror images along fold lines, making the abstract concept of reflection visible and tangible for young learners.

23. **Answer: (b) 25%**

Solution: Cost price per pen = Rs.400 ÷ 20 = Rs.20. Selling price per pen = Rs.25. Profit per pen = Rs.25 - Rs.20 = Rs.5. Profit percentage = (5/20) × 100 = 25%.

24. **Answer: (b) 7 cm**

Solution: A regular hexagon has 6 equal sides. Perimeter = 6 × side length. Therefore, side length = 42 cm ÷ 6 = 7 cm.

25. **Answer: (b) Identifying patterns in bead strings**

Solution: Bead strings provide concrete, visual patterns that young children can manipulate and extend, matching their developmental level of concrete operations before abstract pattern work.

26. **Answer: (c) 90**

Solution: Let the number be x. Then 15% of x = 45, so 0.15x = 45, x = 45 ÷ 0.15 = 300. 30% of 300 = 0.3 × 300 = 90.

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27. **Answer: (a) 1540 cm³**

Solution: Volume of cylinder = $\pi r^2 h = \frac{22}{7} \times 7^2 \times 10 = \frac{22}{7} \times 49 \times 10 = 22 \times 7 \times 10 = 1540$ cm³.

28. **Answer: (b) Developing spatial understanding**

Solution: Movable hands allow students to physically manipulate the clock and see the relationship between hour and minute hands, developing spatial and temporal understanding of how time progresses.

29. **Answer: (b) 15.00**

Solution: First add 12.5 and 8.75 = 21.25. Then subtract 6.25 = 21.25 - 6.25 = 15.00.

30. **Answer: (b) 8**

Solution: Total students = 40, ratio 3:2 means boys = (3/5) × 40 = 24, girls = (2/5) × 40 = 16. To make ratio 1:1, number of girls should equal boys = 24. Additional girls needed = 24 - 16 = 8.

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