

CONTESTANT ID #: _____

GRADE LEVEL : _____

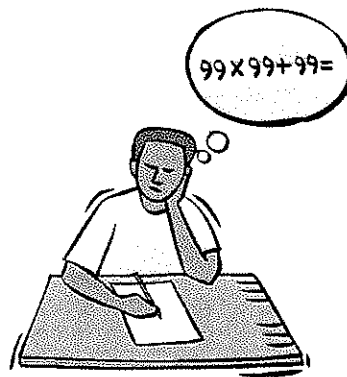
*Place Contestant ID label here BEFORE
Contest Begins*



Mathematics

State Contest

Grades 4-5



2022

FINAL SCORE: _____

(Please do not open test until the signal is given to begin.)

Directions: Choose the best answer for each of the following problems. Choice E is “NOT” for “None of these”.

1. $713 - 276 =$

- A. 437 B. 447 C. 537 D. 547 E. NOT

2. $131 + 130 + 128 =$

- A. 393 B. 399 C. 390 D. 389 E. NOT

3. $(555 - 222) + (555 - 444) =$

- A. 444 B. 333 C. 555 D. 222 E. NOT

4. $\frac{7}{9} - \frac{1}{3} =$

- A. 1 B. $\frac{2}{3}$ C. $\frac{1}{6}$ D. $\frac{4}{9}$ E. NOT

5. How many inches are there in $\frac{1}{6}$ of a yard?

- A. 4 B. 8 C. 6 D. 9 E. NOT

6. $LXVI - XLII =$ _____ (Roman numerals)

- A. XXIV B. XXVI C. XIX D. XXVIII E. NOT

7. $14 \times 6 =$

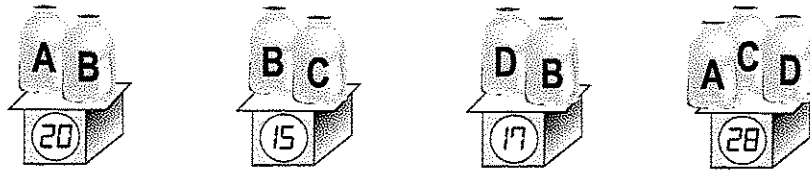
- A. 84 B. 94 C. 104 D. 114 E. NOT

8. What is the median of the set {15, 16, 20, 22, 28, 31}?

- A. 20 B. 21 C. 22 D. 23 E. NOT

9. Katy has $2\frac{1}{4}$ dozen eggs. She gives 8 eggs to Liz. How many eggs does Katy have left?
- A. 19 B. 21 C. 15 D. 17 E. NOT
10. Which property is represented by the equation $8 + 0 = 8$?
- A. commutative B. associative C. additive identity D. additive inverse E. NOT
11. $2022 + 6 - 12 + 18 - 36 + 48 =$
- A. 2036 B. 2042 C. 2046 D. 2054 E. NOT
12. A grocery store has 266 cans of soup and seven shelves to display the soup cans. How many cans of soup go on each shelf when they are evenly distributed?
- A. 38 B. 36 C. 37 D. 39 E. NOT
13. 84.623 meters = _____ centimeters
- A. 846.23 B. 84623 C. 8.4623 D. 8462.3 E. NOT
14. Add: $\left[(7 \times 100) + (3 \times \frac{1}{100})\right] + \left[(6 \times \frac{1}{10}) + (8 \times \frac{1}{100})\right]$
- A. 700.071 B. 707.1 C. 700.71 D. 700.711 E. NOT
15. What is the GCD of 148 and 160?
- A. 2 B. 4 C. 6 D. 8 E. NOT
16. What is the remainder when 58172 is divided by 25?
- A. 8 B. 16 C. 12 D. 22 E. NOT

17. Jars labeled A through D are weighed (in pounds) on the scale in combinations. What does jar B weigh by itself?



- A. 7 pounds B. 8 pounds C. 9 pounds D. 10 pounds E. NOT
18. What percent of 450 is 72?
- A. 12% B. 16% C. 24% D. 18% E. NOT
19. Evaluate $(m + n)(m - n)$ when $m = 20$ and $n = 1$.
- A. 429 B. 399 C. 374 D. 401 E. NOT
20. A swimmer can make one lap every 1 minute 12 seconds. How many laps can she swim in 12 minutes?
- A. 8 B. 12 C. 15 D. 18 E. NOT
21. What is the next term in the sequence 7, 8, 11, 16, 23, 32, ...?
- A. 43 B. 44 C. 45 D. 46 E. NOT
22. $5\frac{2}{7} \times 1\frac{1}{2} =$
- A. $7\frac{1}{2}$ B. $7\frac{9}{14}$ C. $7\frac{11}{14}$ D. $7\frac{13}{14}$ E. NOT

23. If $5^{37} = P$, what is 5^{35} ?

- A. $0.25P$ B. $0.2P$ C. $0.05P$ D. $0.04P$ E. NOT

24. $42^2 + 126^2 =$

- A. 17640 B. 17840 C. 17600 D. 17800 E. NOT

25. Solve for w : $8w - 15 = 2(w + 13) + 1$

- A. 5 B. 6 C. 7 D. 8 E. NOT

26. When the numbers $\frac{2}{7}$, $\frac{1}{4}$, 0.26, $\frac{1}{3}$, and 0.21 are placed in order from least to greatest, what number comes just before $\frac{2}{7}$?

- A. $\frac{1}{3}$ B. $\frac{1}{4}$ C. 0.21 D. 0.26 E. NOT

27. How many total subsets does $\{3, 17, 9, 7, 8, 12\}$ have?

- A. 32 B. 128 C. 64 D. 36 E. NOT

28. What is the largest prime divisor of 85?

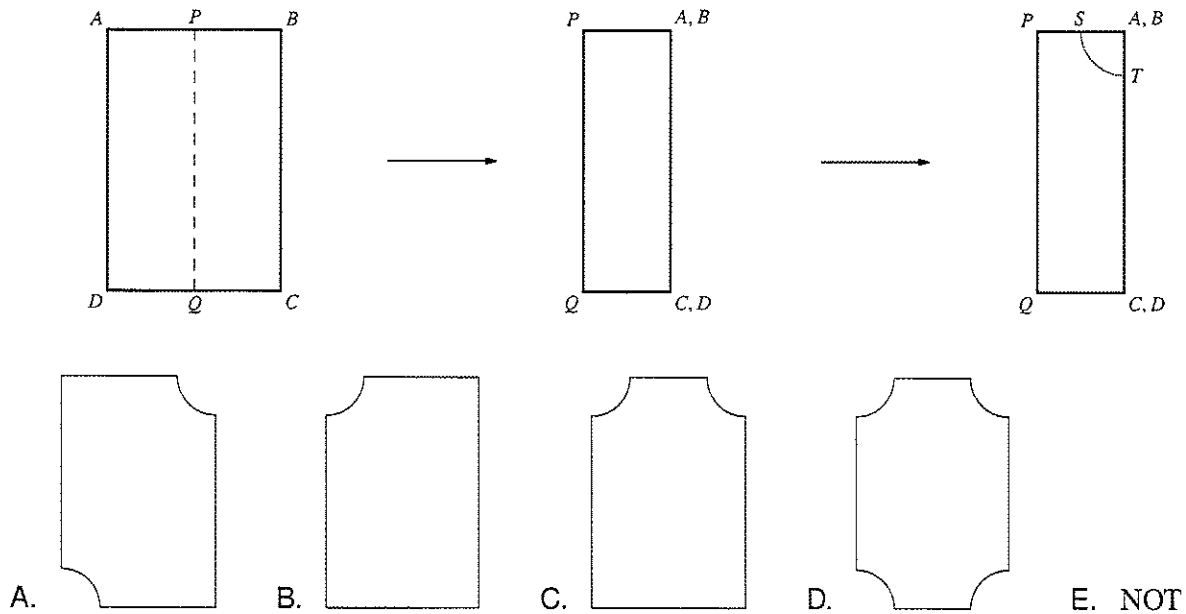
- A. 5 B. 13 C. 17 D. 19 E. NOT

29. The odd numbers 1, 3, 5, ..., 15 are placed in a hat. Two numbers are drawn out at random without replacement. What is the probability that the sum of the numbers drawn exceeds 25?

- A. $\frac{1}{16}$ B. $\frac{1}{14}$ C. $\frac{1}{12}$ D. $\frac{1}{7}$ E. NOT

30. A Mexican restaurant charges \$4 for sopapillas and \$5 for flan. Which expression gives the total cost of buying S sopapillas and F flans?
- A. $20(S + F)$ B. $(S + 4) + (F + 5)$ C. $4S + 5F$ D. $9(S + F)$ E. NOT
31. Two angles of a triangle are 34° and 104° . What is the third angle?
- A. 46° B. 52° C. 56° D. 42° E. NOT
32. What digit is in the millionth's place of the decimal representation of $\frac{14}{111}$?
- A. 1 B. 0 C. 6 D. 2 E. NOT
33. What is the smallest positive 4-digit number that can be added to 63572 to make a number that is evenly divisible by 18?
- A. 1008 B. 1012 C. 1004 D. 1010 E. NOT
34. In a survey of 50 people, 26 people own a cat, 30 people own a dog, and 12 people own both a cat and a dog. How many people own neither a cat nor a dog?
- A. 6 B. 4 C. 2 D. 3 E. NOT
35. How many vertices does an octahedron have?
- A. 4 B. 6 C. 8 D. 12 E. NOT
36. $3\frac{1}{11} + 3\frac{2}{11} + 3\frac{3}{11} + 3\frac{4}{11} + \dots + 3\frac{10}{11} =$
- A. 33 B. 34 C. 35 D. 36 E. NOT

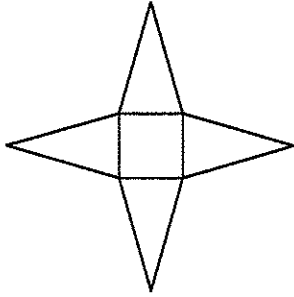
37. A sheet of paper (labeled $ABCD$) is folded in half over the dashed line PQ . Scissors are used to cut out the dotted curve from S to T through both layers. The paper is then unfolded. Which image shows the result?



38. A used car is listed for \$8800. The tax rate is $7\frac{1}{2}\%$. After tax, the buyer must pay a title transfer fee of \$33. What is the total cost after tax and title?

A. \$9483 B. \$9490 C. \$9493 D. \$9496 E. NOT

39. Which 3-D shape will be formed when the net shown is folded?



- A. cube
 - B. square-based pyramid
 - C. rectangular prism
 - D. tetrahedron
 - E. NOT
40. The ratio of boys to girls at school is 5 : 7. There are a total of 672 students at school. How many more girls are there than boys?
- A. 104
 - B. 108
 - C. 112
 - D. 116
 - E. NOT



Mathematics Grades 4-5

State Contest – 2022

Contestant Answer Sheet

GRADERS: Write scores and initial.

Score 1: _____

Score 3: _____

Score 2: _____

FINAL: _____

Contestant ID: _____ Grade Level: _____

INSTRUCTIONS: Place the PRINTED CAPITAL letter of each answer choice (A, B, C, D, or E) in the blank corresponding to the test item number. SCORING: +5 for each correct answer; –2 for each incorrect answer; no deduction for skipped or unanswered items. Visible erasures and mark-outs constitute a 2-point deduction ONLY if a correct answer is not written in the answer space.

- | | | |
|-----------|-----------|-----------|
| 1. _____ | 16. _____ | 31. _____ |
| 2. _____ | 17. _____ | 32. _____ |
| 3. _____ | 18. _____ | 33. _____ |
| 4. _____ | 19. _____ | 34. _____ |
| 5. _____ | 20. _____ | 35. _____ |
| 6. _____ | 21. _____ | 36. _____ |
| 7. _____ | 22. _____ | 37. _____ |
| 8. _____ | 23. _____ | 38. _____ |
| 9. _____ | 24. _____ | 39. _____ |
| 10. _____ | 25. _____ | 40. _____ |
| 11. _____ | 26. _____ | |
| 12. _____ | 27. _____ | |
| 13. _____ | 28. _____ | |
| 14. _____ | 29. _____ | |
| 15. _____ | 30. _____ | |



Mathematics Grades 4-5

State 2022

ANSWER KEY

REMINDERS: PRINTED CAPITAL letters only. SCORING: +5 for each correct answer; -2 for each incorrect answer; no deduction for skipped or unanswered items. Visible erasures and mark-outs constitute a 2-point deduction ONLY if a correct answer is not written in the answer space.

- | | | |
|-------|------------|-------|
| 1. A | 16. D | 31. D |
| 2. D | 17. B | 32. C |
| 3. A | 18. B | 33. B |
| 4. D | 19. B | 34. A |
| 5. C | 20. E (10) | 35. B |
| 6. A | 21. A | 36. C |
| 7. A | 22. D | 37. C |
| 8. B | 23. D | 38. C |
| 9. A | 24. A | 39. B |
| 10. C | 25. C | 40. C |
| 11. C | 26. D | |
| 12. A | 27. C | |
| 13. D | 28. C | |
| 14. C | 29. B | |
| 15. B | 30. C | |