PSIA
Private Schools Interscholastic Association

Mathematics
STATE Contest
Grades 4 & 5

2019

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. $738 + 591 - 23 =$

   A. 1206   B. 1216   C. 1316   D. 1306   E. NOT

2. $61 + 24 + 81 + 159 + 196 + 139 =$

   A. 660   B. 760   C. 360   D. 740   E. NOT

3. Write CCXLVI in Arabic numerals.

   A. 264   B. 246   C. 266   D. 244   E. NOT

4. $\dfrac{1}{5} + \dfrac{1}{25} + \dfrac{1}{125} =$

   A. $\dfrac{32}{125}$ B. $\dfrac{7}{25}$ C. $\dfrac{6}{25}$ D. $\dfrac{31}{125}$ E. NOT

5. Kristi borrowed $55 from her mom and $172 from her dad. She repaid her mom $40 and her dad $63. How much does she now owe her parents?

   A. $124   B. $250   C. $128   D. $248   E. NOT

6. Phil has 36 nickels, 14 dimes, and 8 quarters. How much money does he have in total?

   A. $6.70   B. $5.80   C. $6.30   D. $5.20   E. NOT

7. $40 - 20 - 10 - 5 - 2\dfrac{1}{2} =$

   A. $1\dfrac{1}{4}$ B. $2\dfrac{1}{2}$ C. 5   D. $3\dfrac{3}{4}$ E. NOT

8. Farmer Brown has three silos: A, B, and C. Silos A and B have 136 bushels of grain together. Silos B and C have 160 bushels of grain together. Silos A and C have 168 bushels of grain together. How many total bushels of grain are in Silos A, B, and C together?

   A. 244   B. 240   C. 232   D. 224   E. NOT

9. $4^3 + 5^2 - 6^1 + 7^0 =$

   A. 17   B. 84   C. 69   D. 90   E. NOT

10. $1748 \div 46 =$

   A. 42   B. 36   C. 38   D. 48   E. NOT

11. The area of a rectangle is 224 cm^2. The length is two centimeters longer than the width. What is the perimeter of the rectangle?

   A. 30 cm   B. 48 cm   C. 60 cm   D. 72 cm   E. NOT

12. It takes María 32 seconds to jog 64 yards. How long will it take her to jog 120 feet?

   A. 1 minute 4 seconds   B. 20 seconds   C. 15 seconds   D. 48 seconds   E. NOT

13. $\dfrac{15}{16} \times \dfrac{4}{5} \times \dfrac{2}{3} =$

   A. $\dfrac{1}{2}$ B. $\dfrac{1}{4}$ C. $\dfrac{1}{20}$ D. $\dfrac{2}{15}$ E. NOT

14. If $9x - 13 = 7x - 7$, then $x =$

   A. 2   B. 3   C. 4   D. 5   E. NOT

15. $(27 + 28 + 29 + 30 + \ldots + 40) - (16 + 17 + 18 + 19 + \ldots + 29) =$

    A. 158   B. 169   C. 154   D. 165   E. NOT

16. If $81^2 + 83^2 = 13450$, what is the value of $(81 \times 82) + (82 \times 83)$?

    A. 13442   B. 13446   C. 13448   D. 13452   E. NOT

17. Tasha took five quizzes and averaged a 90. What will her new average be if she takes a sixth quiz and scores 78?

    A. 86   B. 87   C. 88   D. 89   E. NOT

18. $\dfrac{4}{7} \times 16 + \dfrac{4}{7} \times 13 + \dfrac{4}{7} \times 6 =$

    A. 16   B. 18   C. 24   D. 20   E. NOT

19. $\dfrac{33}{25} =$ _____ (decimal)

    A. 1.24   B. 1.36   C. 1.32   D. 1.28   E. NOT

20. How many 4-digit natural numbers are divisible by both 2 and 9?

    A. 500   B. 250   C. 1000   D. 1250   E. NOT

21. What is the 36th term in the sequence 17, 52, 87, 122, . . .?

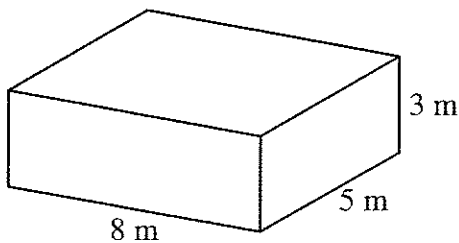   A. 1232   B. 1242   C. 1252   D. 1262   E. NOT

22. A new laptop normally costs $750.00. The store is running a "back-to-school" sale and is offering a 20% discount. The tax rate is 8%. How much will the laptop cost after the discount and tax is applied?

    A. $664   B. $648   C. $632   D. $656   E. NOT

23. Wheat crackers contain 30 mg of calcium per serving. The serving size is 16 crackers. How many milligrams of calcium do you receive by eating 24 crackers?

    A. 20 mg   B. 45 mg   C. 48 mg   D. 18 mg   E. NOT

24. Find the total surface area of the box shown.

    A. 172 m^2

    B. 158 m^2

    C. 144 m^2

    D. 120 m^2

    E. NOT

25. The letter F represents a single digit. What number should F be so that 83F256 is evenly divisible by 11?

    A. 0   B. 2   C. 7   D. 8   E. NOT
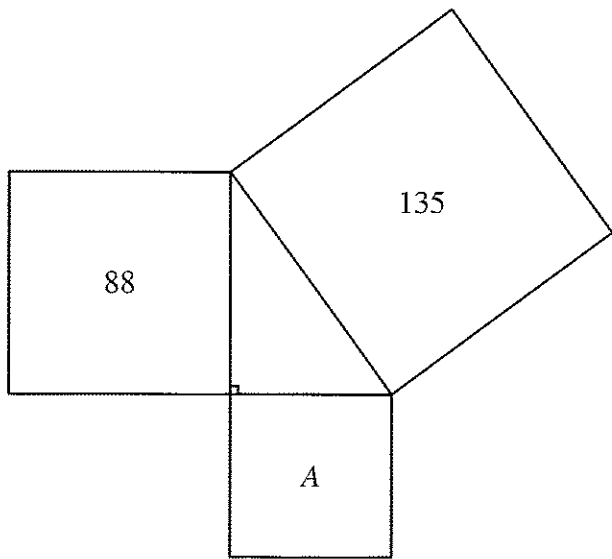
26. $\sqrt{324} =$

    A. 18   B. 16   C. 17   D. 19   E. NOT

27. Solve for x: $2\frac{1}{2}x = 1\frac{3}{4}$
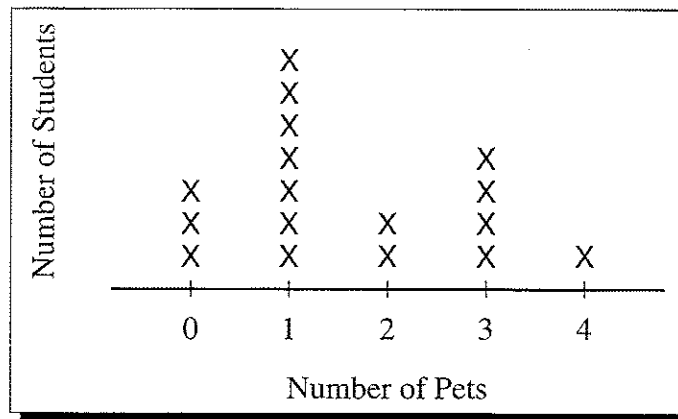
    A. $\frac{7}{16}$ B. $\frac{2}{3}$ C. $\frac{7}{10}$ D. $\frac{1}{2}$ E. NOT

28. Three squares are shown built on the sides of a right triangle, as shown. The areas of each square are given. Find area A.

A. 223
B. 213
C. 57
D. 47
E. NOT

29. The line plot below gives the number of students in class with a certain number of pets. How many students have less than 2 pets?

A. 12   B. 1   C. 7   D. 10   E. NOT

30. What is the sum of the positive integral divisors of 76?

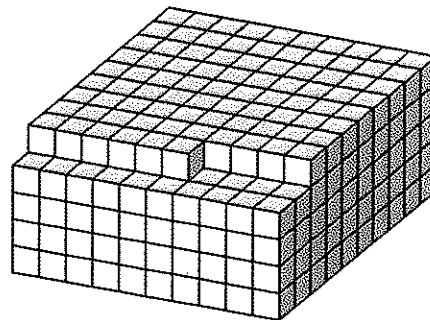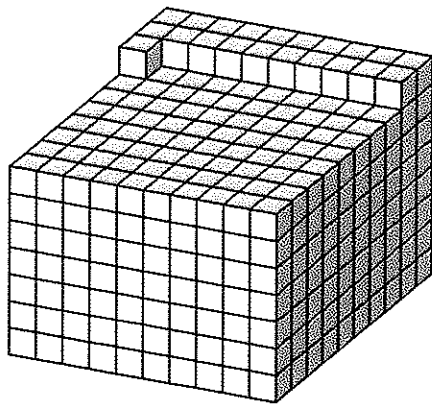   A. 120   B. 132   C. 140   D. 156   E. NOT

31. $\dfrac{14^5 \times 21^3}{2 \times 3^2 \times 7^7} =$

    A. 336   B. 216   C. 168   D. 48   E. NOT

32. A taco costs $2.25 less than a burrito. Maddie bought 32 tacos and 18 burritos and paid $125.50. How much would 28 tacos and 22 burritos cost?

    A. $134.50   B. $127.25   C. $123.25   D. $116.50   E. NOT

33. What number is the sum of the decimals represented by the figures shown?

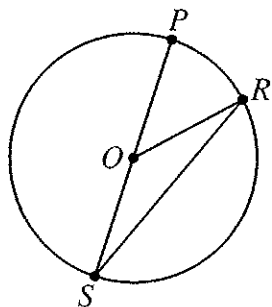   A. 1.227   B. 1.237   C. 1.197   D. 1.207   E. NOT

34. Six tiles are placed in a hat. Four tiles are red; the rest are black. Two tiles are drawn out at random without replacement. What is the probability they are the same color?

    A. $\dfrac{5}{9}$ B. $\dfrac{17}{30}$ C. $\dfrac{7}{15}$ D. $\dfrac{2}{3}$ E. NOT

35. If $x = 3$, what is the value of $x^3 + 9x^2 + 81x + 729$?
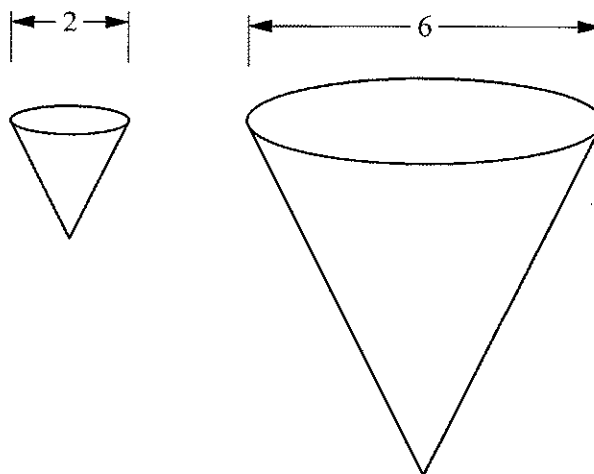
    A. 810   B. 1080   C. 1260   D. 2187   E. NOT

36. In circle O, $\overline{PS}$ is a diameter and the measure of $\angle SOR$ is 136°. What is the measure of $\angle OSR$?

    A. 22°

    B. 33°

    C. 44°

    D. 66°

    E. NOT

37. The cone on the left is similar to the cone on the right. The cone on the left holds 3 pints of ice cream. How much ice cream will the cone on the right hold?
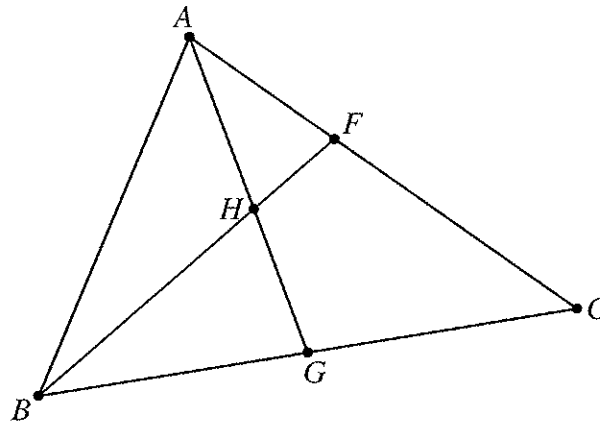
    A. $1\frac{1}{8}$ gal   B. $3\frac{3}{8}$ gal   C. $6\frac{5}{8}$ gal   D. $10\frac{1}{8}$ gal   E. NOT

38. Let s equal the sum of the first 7 prime numbers. Which of the following statements are true?

    I. s is odd.
    II. $s < 119$.
    III. s is prime.

  A. **II** only   B. **I** and **II**   C. **I** and **III**   D. **I**, **II**, and **III**   E. NOT

39. In $\triangle ABC$, F is a point on $\overline{AC}$ where $AF : FC = 3 : 5$. Also, G is the midpoint of $\overline{BC}$. If the area of $\triangle ABC$ is 88, what is the area of $\triangle BHG$?

  A. 22   B. 24   C. 25   D. 20   E. NOT

40. The grid below gives the name of the person and the amount of money that person charges to perform each job. All four jobs must be assigned with each person getting a different job. What is the smallest possible cost to have all jobs performed?

	Wash Car	Dust Living Room	Do Laundry	Walk Dogs
Edith	$9	$7	$5	$9
Faith	$6	$8	$4	$7
Gabby	$12	$3	$6	$9
Hayleigh	$15	$13	★	$12

★ – Hayleigh is not allowed to do laundry

A. $25   B. $26   C. $27   D. $28   E. NOT

PSIA Mathematics Grades 4 & 5 Contest
Student Answer Sheet

CONTESTANT ID#:_____   GRADE LEVEL:_____

INSTRUCTIONS: Place the **printed** CAPITAL letter of each answer choice (A, B, C, or D) in the blank corresponding to the test item number. **SCORING:** +5 for each correct answer; -2 for each incorrect answer; no deduction is taken 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. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

25. _____

26. _____

27. _____

28. _____

29. _____

30. _____

31. _____

32. _____

33. _____

34. _____

35. _____

36. _____

37. _____

38. _____

39. _____

40. _____

SCORE / INITIALS:

Grader #1: _____ _____

Grader #2: _____ _____

Grader #3: _____ _____

Official Score: _____

Contest Director ONLY: Match school & name AFTER tests are scored:_____

PSIA Mathematics Contest
Grades 4 & 5
STATE — 2019
Answer Key

Scoring: +5 for each correct answer; -2 for each incorrect answer; no points are deducted for skipped or unanswered items. Deduct 2 points for erasures and mark-outs that do not result in a correct answer.

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