5th Grade Written Test Instructions

James Clemens Math Tournament

1. You have 90 minutes to complete this exam.

2. This exam consists of 25 multiple-choice questions and 3 free-response questions used as tie-breakers. The multiple-choice questions are each worth 4 points if answered correctly and no points if left unanswered. 1 point will be deducted for each incorrect answer. The free-response questions are each worth 0.1 points if answered correctly, and no points if answered incorrectly or left unanswered. The maximum score for this test is 100.3 points.

3. Calculators, books, and other aides are prohibited during this examination. Scratch paper will be provided for calculations. Diagrams are not necessarily drawn to scale.

4. Mark your answers to the questions in the provided Scantron form. You may use the test booklets for scratch work, but only answers marked in the Scantron form will be counted. If you require additional scratch paper, simply raise your hand and a volunteer will assist you.

5. In the event of a tie, answers will be evaluated starting backwards from question 25 to 1 to determine a winner.

6. Although this math tournament is intended to demonstrate your knowledge and skills in math, it is also a great opportunity for you to interact with your fellow peers, so be sure to enjoy yourself and have fun!

1. Let A be the number of ways the letters in FIFTHGRADE can be arranged. Let B be the probability of rolling the same number twice on a six-sided die. Let C be the number of positive integral factors of 256. Find (A·B) + C

   A. 362880 B. 120 C. 302409 D. 10882 E. NOTA

2. Heidi is trying to distribute pieces of candy into goody bags. When she distributes the candy into 8 goody bags, she has 4 pieces of candy left over. When she distributes the candy into 7 goody bags, she has 3 pieces of candy left over. What is the fewest number of pieces of candy Heidi could have?

   A. 68 B. 52 C. 24 D. 60 E. NOTA

3. Harshtha has a bowl of cookies. She gives 1/3 of the cookies to her mom and splits 3/4 of the remaining cookies with her 5 friends. She has 5 cookies left. How many cookies did each of her friends get?

   A. 3 B. 20 C. 5 D. 12 E. NOTA

4. Laya is trying to calculate her grade. She has four test scores: 78, 81, 90, and one unknown test score. Altogether, the test scores have an average of 82. What is the unknown test score?

   A. 90 B. 87 C. 92 D. 79 E. NOTA

5. Solve: $(3^2 - 5 \cdot 6/15) \cdot 3$

   A. 5 B. 21 C. 20 D. 16 E. NOTA

6. Erik flips a coin 3 times. What is the difference between the odds and the probability of landing three heads? Provide your answer as a fraction in simplest terms.

   A. 1/27 B. 1/18 C. 1/56 D. 1/3 E. NOTA

7. Jeffrey can mow the lawn in 2 hours. If Eddie helps, they mow the lawn in 75 minutes. How long in hours does it take Eddie alone to mow the lawn? Provide your answer as a fraction in simplest terms.

A. 10/3 B. 3/10 C. 9/10 D. 10/9 E. NOTA

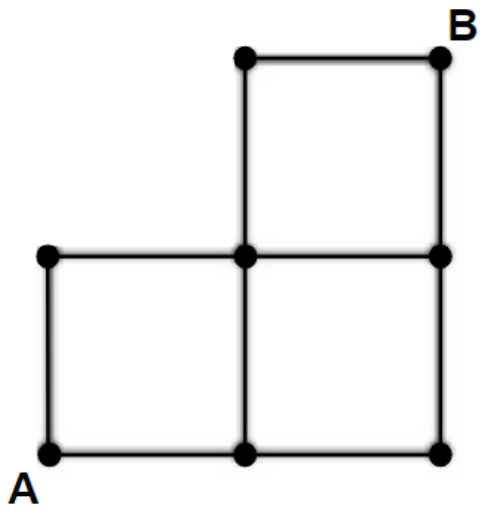
8. Solve: $\sqrt{50}$ - $\sqrt{18}$

   A. $2\sqrt{2}$ B. 3 C. $5\sqrt{3}$ D. $4\sqrt{2}$ E. NOTA

9. James, Ella, Matthew, and 2 other people are in line for tickets. If James is in front of Ella who is in front of Matthew, how many different ways can the people in line be arranged?

   A. 120 B. 10 C. 50 D. 19 E. NOTA

10. Stella is trying to get from point A to point B. Unfortunately, she can only move up or to the right. How many different paths can she take?



    A. 5 B. 6 C. 10 D. 12 E. NOTA

11. Solve:

$$3^4/3^2$$

    A. 3 B. 6 C. 1 D. 9 E. NOTA

12. How many numbers less than 100 are multiples of 3 or 5?

    A. 58 B. 6 C. 47 D. 46 E. NOTA

13. What is the units digit of 7^{2025} - 3^{2024}?

    A. 2 B. 4 C. 6 D. 8 E. NOTA

14. A subset of any size is randomly selected from the set N= [1,3,5,7,9]. What is the probability that the chosen subset contains the number 5?

    A. 1/4 B. 2/3 C. 1/6 D. 1/2 E. NOTA

15. How many distinct diagonals will a 36 sided polygon have?

    A. 612 B. 594 C. 648 D. 256 E. NOTA

16. Emily and her mom are 30 years apart. The sum of their ages is x. 5 years ago, the sum of their ages was y. Find $x - y$.

    A. 10 B. 5 C. 30 D. 0 E. NOTA

17. Jeremy has 6 white socks, 4 blue socks, and 10 gray socks. He pulls socks randomly at a time without replacing them. What is the fewest number of socks he must pull to ensure he has a pair of gray socks?

    A. 10 B. 4 C. 11 D. 13 E. NOTA

18. 1080 minutes is what percentage of 1 day?

    A. 50 B. 48 C. 75 D. 32 E. NOTA

19. Solve for x:

$$76/x = 19/20$$

    A. 80 B. 75 C. 4 D. 5 E. NOTA

20. Old McDonald had a farm consisting only of ducks and cows. You know that there are a total of 73 animal heads and 184 animal feet. How many ducks are on Old McDonald's farm?

    A. 19 B. 42 C. 44 D. 54 E. NOTA

21. Harshtha buys a TXT and an aespa album. The total cost was $22.50. If the TXT album cost $14 more dollars than the aespa album, how much does the TXT album cost?

    A. $16.00 B. $18.25 C. $15 D. $14.20 E. NOTA

22. A 10 ft ladder is leaning against a wall and is positioned such that the distance from the base of the ladder to the wall is 8 ft. What is the height of the distance from the top of the ladder to the bottom of the building?

    A. 4 ft B. 10 ft C. 7.5 ft D. 6 ft E. NOTA

23. Jessica has 72 candies that she wants to share with her family and friends. First, she gives one third of her candies to her friends. Then, she gives one fourth of the remaining candies to her brother. Lastly, she gave her parents the two thirds of the remaining candy and kept the rest for herself. How much candy does Jessica have remaining?

    A. 6 B. 24 C. 12 D. 10 E. NOTA

24. Ms. Himes had a giant chocolate bar. She gave each of her students one-twelfth of the chocolate bar. One-fourth of the chocolate bar was left. How many students does Ms. Himes have?

    A. 5 B. 9 C. 10 D. 7 E. NOTA

25. What is the smallest number larger than 2024, that when you divide by 3 will give you a remainder of 2?

    A. 2025 B. 2027 C. 2030 D. 2029 E. NOTA

TB1: What is the greatest common factor of 8, 18, and 70?

TB2: Jamie divides a secret number by 15 and gets a remainder of 11. What would be the remainder if he divided his secret number by 3?

TB3: Jessie read some books over the holidays. Alexa read 4 times as many books as Jessie. Altogether they read 25 books. How many more books did Alexa read than Jessie?