

Fourteenth Annual PI Competition

5th Grade Individual Test



YOU WILL HAVE 60 MINUTES TO COMPLETE THIS TEST. THERE ARE 30 MULTIPLE CHOICE QUESTIONS. MARK YOUR ANSWER ON THE ANSWER SHEET. NO AIDS SUCH AS CALCULATORS, NOTES, BOOKS, ETC., MAY BE USED IN COMPLETING THIS TEST. ALL FRACTIONS MUST BE IN SIMPLEST FORM. **THE CHOICE E. NOTA, DENOTES “NONE OF THE ABOVE.” IF NONE OF THE ANSWERS ARE CORRECT, CHOOSE E.**

WATCH OUT FOR SILLY MISTAKES. REMEMBER THAT THESE QUESTIONS ARE MEANT TO BE CHALLENGING FOR EVEN THE TOP STUDENTS.

GOOD LUCK AND HAVE FUN!

1. What is the next term in the series: 20, 21, 23, 26, 30, ...?
A. 31 B. 35 C. 36 D. 39 E. NOTA
2. Solve $5 + 4 \times 3 - 12 \div 6$
A. 2.5 B. 75 C. 15 D. 25 E. NOTA
3. What is the least common multiple of 12 and 42?
A. 2 B. 84 C. 504 D. 3 E. NOTA
4. Peter wants to visit his friends who live 200 miles away. A car goes 40 miles per hour. A train goes 100 miles per hour, but he has to wait for 1 hour at the train station. An airplane goes 200 miles per hour, but he has to wait 4 hours at the airport. What is the fastest way for Peter to visit his friends?
A. Car B. Train C. Airplane D. Car and train are the same E. NOTA

5. Kaylee is very good at golf. She played five rounds and scored 78, 85, 74, 91, and 86.

What was the average of her scores?

A. 103.5 B. 83.8 C. 82.6 D. 103.7 E. NOTA

6. An oven is at 325 degrees. All three digits of this temperature are prime numbers. Prime numbers are only divisible by 1 and itself. As the temperature increases, what is the sum of the digits of the next temperature when all three digits are prime numbers?

A. 7 B. 9 C. 11 D. 12 E. NOTA

7. If a 6-sided die numbered 1-6 is thrown. What is the probability that it lands on an odd number?

A. $\frac{1}{6}$ B. $\frac{1}{3}$ C. $\frac{1}{2}$ D. $\frac{2}{3}$ E. NOTA

8. Find the surface area of a cube with a side length of 5 feet.

A. 150 ft² B. 25 ft² C. 125 ft² D. 20 ft² E. NOTA

9. What is the value of x if $4x + 3 = 15$?

A. $\frac{9}{2}$ B. 12 C. $\frac{2}{9}$ D. 3 E. NOTA

10. The length of a volleyball court is 24 yards more than its width. If the area of the volleyball court is 217 yards², what is its width?

A. 31 yards B. 76 yards C. 42 yards D. 7 yards E. NOTA

11. A pizza maker makes 80% of his pizzas perfectly on the first try. If he made 80 pizzas, how many were NOT made perfectly?

A. 20 B. 64 C. 60 D. 32 E. NOTA E. NOTA

12. What is $53.6 + 47.9$?

A. 100.5 B. 90.5 C. 101.5 D. 91.5 E. NOTA

13. What is $5\frac{2}{3} + 4\frac{1}{4}$
- A. $9\frac{11}{12}$ B. $9\frac{1}{6}$ C. $9\frac{3}{7}$ D. $9\frac{2}{5}$ E. NOTA
14. What is the reciprocal of $-\frac{x}{2}$
- A. $\frac{x}{2}$ B. $-2x$ C. $-\frac{2}{x}$ D. $\frac{2}{x}$ E. NOTA
15. Anna wants to put a fence around her circular pool. The radius of the pool is 12 feet.
- What is the length of the fence?
- A. 12π B. 144π C. 24π D. 36π E. NOTA
16. A glass of water can hold 30 cubic centimeters of water. If you drink $\frac{1}{15}$ cubic centimeters of water each time you take a sip, how many sips will you take to empty the cup?
- A. 2 B. 225 C. 15 D. 450 E. NOTA
17. What is the probability of flipping heads on a coin AND rolling a 3 on a normal 6-sided die?
- A. $\frac{2}{3}$ B. $\frac{1}{4}$ C. $\frac{1}{6}$ D. $\frac{1}{12}$ E. NOTA
18. When $\frac{54}{81}$ is expressed in simplest form, it equals $\frac{a}{b}$. What is the product of $a \times b$?
- A. 6 B. 54 C. 5 D. 15 E. NOTA
19. Order from least to greatest: $X = 10\%$ of 50, $Y = 20\%$ of 60, $Z = 25\%$ of 80
- A. Z, Y, X B. X, Y, Z C. Y, Z, X D. X, Z, Y E. NOTA

20. John wants to arrange his trophies in rows with 7 trophies in each row. He currently has 26 trophies. What is the smallest number of additional trophies he must win in order to be able to arrange his trophies this way?

- A. 5 B. 2 C. 4 D. 3 E. NOTA

21. Which of the following correctly express 2023?

- I. Two thousand twenty-three
II. $2000 + 20 + 3$
III. $2 \times 1000 + 1 \times 100 + 2 \times 10 + 3 \times 0$

- A. I only B. I, II, and III C. II and III D. I and II E. NOTA

22. Megan drove 9,000 miles last year. How many gallons of gas would she have saved if she had driven a more efficient car averaging 36 miles per gallon instead of a car averaging 12 miles per gallon?

- A. 250 B. 750 C. 300 D. 500 E. NOTA

23. There are 20 shirts in my closet. 6 of them are blue. There are 4 fewer yellow shirts than blue shirts, and 8 more green shirts than yellow shirts. How many shirts are NOT blue, yellow, or green?

- A. 2 B. 18 C. 6 D. 12 E. NOTA

24. Ben can't remember his phone's 3-digit password. He knows that there is a 1, an 8, and a 9, but he does not know what order they go in. How many password combinations could Ben make?

- A. 9 B. 6 C. 3 D. 12 E. NOTA

25. Solve $5x < x + 16$

- A. $x > 4$ B. $x < 12$ C. $x < 4$ D. $x > 12$ E. NOTA

26. Maria has C cookies and eats 5 of them. Her mom bought her 12 more cookies. Which expression shows how many cookies Maria has now?
- A. $C - 7$ B. $5C - 12$ C. $12C - 5$ D. $C + 7$ E. NOTA
27. Walter needs a new pair of shoes. He goes to the store and sees they have a 25% off sale. If the shoes cost \$37.50 with the discount taken off, what was the original price of the shoes?
- A. \$9.38 B. \$12.50 C. \$46.89 D. \$51.67 E. NOTA
28. How many sides are on a triangular pyramid?
- A. 6 B. 5 C. 4 D. 3 E. NOTA
29. Aaron runs two miles on Monday, six miles on Tuesday, and 10 miles on Wednesday. If this pattern continues, how many miles does Aaron run on Friday?
- A. 14 B. 30 C. 18 D. 26 E. NOTA
30. Congratulations, you have reached the last problem! You may find it difficult. What is the sum of the Roman numerals XVI, CIX, and LXXXIII.
- A. 208 B. 210 C. 212 D. 214 E. NOTA