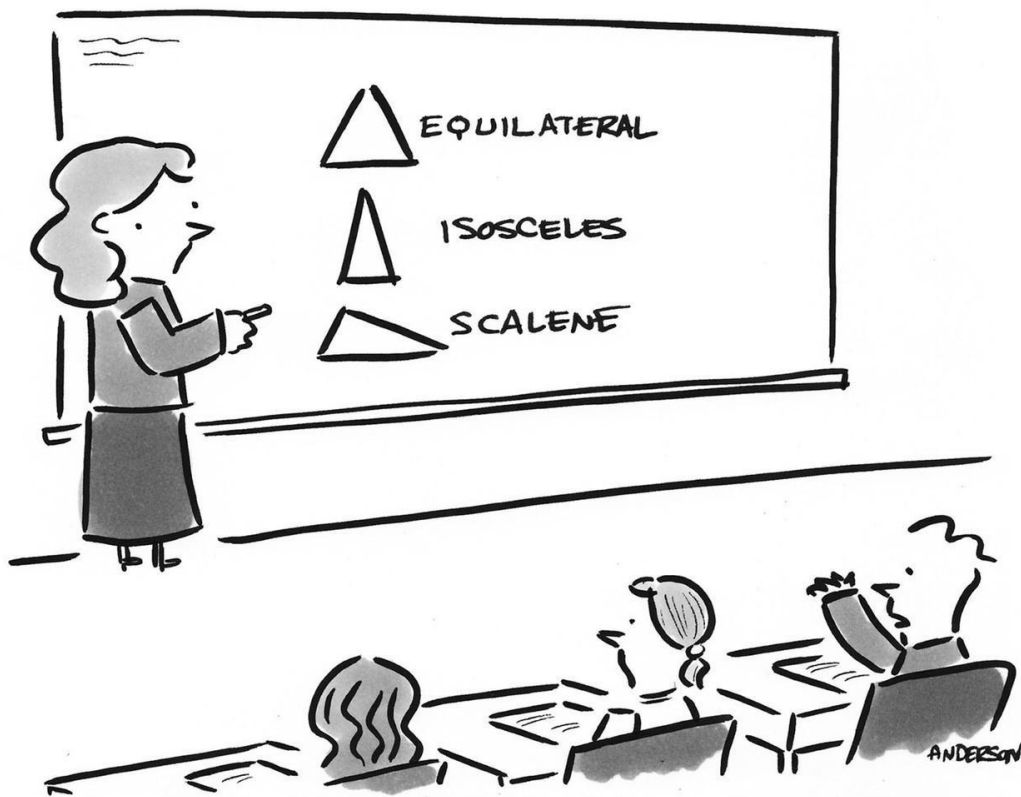


Fourteenth Annual PI Competition

Math I Individual Test

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"You forgot Bermuda."

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. Linda went to the farmer’s market. She spent a total of \$16.50 to buy 4 apples and some oranges. If each apple is \$2.49 and each orange is \$1.24, how many full oranges can Linda buy?
A. 4 B. 5 C. 5.5 D. 6 E. NOTA
2. Your mom bought you a one-year swimming pass for \$390. If your mom purchases the pass over twelve interest free payments, how much money will your mom pay per payment?
A. \$33.50 B. \$40.00 C. \$32.50 D. \$42.50 E. NOTA
3. Solve for the value of x in the following equation: $4 + 2x = \frac{2x}{3}$, then find the value of $x + 5$.
A. 3 B. 2 C. 5 D. 4 E. NOTA

4. A triangle has a height of 4 inches. If the area of the triangle is 12 inches squared, what is the length of the base?
- A. 3 inches B. 6 inches C. 8 inches D. 12 inches E. NOTA
5. Billy works 12 hours a week in the gas station for 4 weeks. If he makes \$15.10 an hour plus a \$1.00 tip from each customer when he works, how much will he have made after the 4 weeks if 18 customers enter the building when he is working?
- A. \$152.57 B. \$886.57 C. \$724.80 D. \$5091.60 E. NOTA
6. Patrick is 5 times Annie's age. If Annie is 3 years older than Charlie, and Charlie is 12 years old. How old is Patrick?
- A. 15 B. 18 C. 32 D. 75 E. NOTA
7. Jake traveled for 117 miles in 2.25 hours to come home for winter break. What is the average speed he was traveling?
- A. 54 mph B. 48 mph C. 52 mph D. 50 mph E. NOTA
8. I am thinking of two numbers, 12 and x . 12 and x have the same greatest common factor of 6 and the least common multiple of 36. What is the value of x ?
- A. 18 B. 24 C. 6 D. 12 E. NOTA
9. What is the median of the following data set {1, 8, 7, 19, 13, 15, 17, 92}
- A. 16 B. 24 C. 22 D. 14 E. NOTA
10. Three vertices of a rectangle are located at (0, 3), (7, 7), and (7, 3) on a standard coordinate plane. What is the ordered pair of the fourth vertex?
- A. (0, 6) B. (7, 0) C. (0, 5) D. (0, 7) E. NOTA

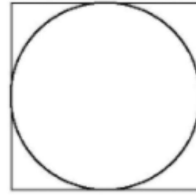
11. An apple weighs as much as 18 grapes. 8 kiwis weigh the same as 2 apples. How many kiwis have the same weight as 54 grapes?

- A. 24 kiwis B. 26 kiwis C. 18 kiwis D. 16 kiwis E. NOTA

12. How many numbers from 1 to 100 are multiples of 7?

- A. 10 B. 13 C. 14 D. 15 E. NOTA

13. A circle is inscribed in a square. If the circle has an area of 49π , what is the area of the square. Hint: the area of the circle is πr^2 .



- A. 196 B. 49 C. 64 D. 98 E. NOTA

14. Andy works 7 hours a day 3 days a week. If he is paid \$8.65 an hour, how much money does he earn after working 3 weeks?

- A. \$181.65 B. \$622.80 C. \$544.95 D. \$576.00 E. NOTA

15. The Seattle Seahawks scored 34 points against the New England Patriots. If they scored 4 touchdowns, how many points did they score off field goals? A touchdown is 7 points, and a field goal is 3 points.

- A. 2 B. 3 C. 6 D. 9 E. NOTA

16. Robert and Anne start with an equal amount of money. Each of them decides to spend some of it each day. Robert spends \$27 each day, and Anne spends \$42. When Anne spends all of her money, Robert still has \$210. How much money did each of them start with?

- A. \$210 B. \$14 C. \$378 D. \$588 E. NOTA

17. The Perseverance Rover just landed on Mars. If the trip took 7 months and Earth is 130,360,000 miles away from Mars, approximately how fast was the spacecraft traveling at in miles per hour? (assume that there are 30 days in a month)
- A. 27,836 mph B. 24,945 mph C. 19,459 mph D. 25,865 mph E. NOTA
18. What is the prime factorization of 54?
- A. 2×3^3 B. 3×2^3 C. $2^3 \times 3^2$ D. 3×2^2 E. NOTA
19. What is the ratio of the least common multiple to the greatest common factor of 36 and 18?
- A. 1:18 B. 2:1 C. 18:36 D. 3:1 E. NOTA
20. The expression is equivalent to which of the following? $5q + 12p - 3p + 7q - 8$
- A. $17q + 4p - 8$ B. $12q + 9p - 8$ C. $8p + 19q - 8$
- D. $12p + 9q - 8$ E. NOTA
21. A right, rectangular prism has a length of 4.7 cm, a width of 2.1 cm, and a height of 5.3 cm. What is the volume of the rectangular prism?
- A. 12.1 B. 50.61 C. 32.17 D. 52.31 E. NOTA
22. If two regular six-sided dice numbered 1 to 6 are rolled, what are the chances that the two numbers add up to 9?
- A. 1/6 B. 1/12 C. 1/3 D. 1/9 E. NOTA
23. If a ratio is expressed as $6/24$, what is the value of X in the equivalent ratio with $8/X$?
- A. 32 B. 6 C. 48 D. 16 E. NOTA

24. An artist paints 20% of a painting per hour. After the painting is completed, it takes 6 hours to dry. What is the total number of minutes elapsed from the start to the finish of this process?

- A. 300 B. 660 C. 600 D. 360 E. NOTA

25. Megan can swim 1208 meters in 15 minutes. What is her speed in meters per second, rounded to the nearest meter?

- A. 2 mps B. 81 mps C. 1 mps D. 57 mps E. NOTA

26. Find and simplify the product of the following expression: $\frac{5}{8} \times \frac{3}{5} \times \frac{5}{2} \times \frac{1}{4} \times 3$

- A. $\frac{3}{64}$ B. $\frac{16}{19}$ C. $\frac{15}{26}$ D. $\frac{45}{64}$ E. NOTA

27. 5,000 people went to the grocery store on Saturday. On Sunday, 25% more people went to the grocery store than on Saturday. On Monday, 10% fewer people went to the grocery store than Sunday. How many people went to the grocery store on Monday?

- A. 125 B. 4125 C. 6875 D. 375 E. NOTA

28. What is the product of the mean, median, and mode of the following data set? {7, 3, 6, 5, 5, 9, 8, 5}

- A. 150 B. 180 C. 165 D. 160 E. NOTA

29. What is the sum of 12 and its square?

- A. 132 B. 288 C. 156 D. 224 E. NOTA

30. Congratulations! You have reached the last question. What is the sum of the numbers 1 through 50?

- A. 1275 B. 1020 C. 1350 D. 1465 E. NOTA