47th Annual Math Superbowl - 2022
Level 1: 7th Grade Blitz

Directions: **1. Select the most correct answer for each question.**
2. Use $\pi = 3.14$ if needed.
3. NO CALCULATORS OR ELECTRONIC DEVICES MAY BE USED.
4. Note that N.O.T. means "none of these."

1. A circle is inscribed in a square whose sides are 6 inches. What is the area of the circle?
(A) 28.26 sq. in. (B) 18.84 sq. in. (C) 12 sq. in. (D) 18.6 sq. in. (E) N.O.T.

2. If two six-sided dice are rolled, what is the probability that the sum will be 5?
(A) $\frac{5}{36}$ (B) $\frac{1}{9}$ (C) $\frac{1}{12}$ (D) $\frac{1}{6}$ (E) N.O.T.

3. What is 30% of 60?
(A) 1.8 (B) 20 (C) 18 (D) 2 (E) N.O.T.

4. What is $\sqrt{1.69}$?
(A) 0.845 (B) 0.13 (C) 1.3 (D) 0.338 (E) N.O.T.

5. What is the sum of the first 20 positive even integers?
(A) 400 (B) 200 (C) 420 (D) 120 (E) N.O.T.

6. What is an alternate form of $\sqrt{4+2\sqrt{3}}$?
(A) $1+\sqrt{6}$ (B) $1+\sqrt{3}$ (C) $2+\sqrt{6}$ (D) $2+2\sqrt{3}$ (E) N.O.T.

7. Suppose you flip a coin four times. What is the probability of getting exactly three heads and one tails?
(A) $\frac{1}{4}$ (B) $\frac{3}{4}$ (C) $\frac{1}{2}$ (D) $\frac{3}{8}$ (E) N.O.T.

8. What is $\frac{4}{3}-\frac{5}{7}$?
(A) $\frac{1}{4}$ (B) $\frac{13}{21}$ (C) $-\frac{1}{21}$ (D) $\frac{3}{7}$ (E) N.O.T.

9. What is $63 \div 14$?
(A) 0.45 (B) 45 (C) 0.045 (D) 4.5 (E) N.O.T.

10. If a car travels at a speed of 65 miles per hour for a total distance of 455 miles, then how long was the trip?
(A) 7 hours (B) 7.5 hours (C) 6 hours (D) 6.5 hours (E) N.O.T.

11. Jimmy is an avid Funko POP! collector. He currently owns 300 POP! figures. If he sells 33% of his collection, how many Funko POP! figures does Jimmy now have?
(A) 99 figures (B) 291 figures (C) 201 figures (D) 100 figures (E) N.O.T.

12. What is the area of a triangle whose base is 8 inches and height 11 inches?
(A) 38 sq. in. (B) 88 sq. in. (C) 19 sq. in. (D) 44 sq. in. (E) N.O.T.

13. Mr. Navarro can run a mile in 6.4 minutes. If he runs for 32 minutes, then how many miles did he complete?
(A) 5 miles (B) 25.6 miles (C) 4.5 miles (D) 3 miles (E) N.O.T.

14. If $y = x^2 + 3x - 4$, then what is the value of y when $x = 4$?
(A) 16 (B) 11 (C) 24 (D) 18 (E) N.O.T.

15. Which of the following is not a prime number?
(A) 37 (B) 97 (C) 11 (D) 131 (E) N.O.T.

16. What is the perimeter of a rectangle with length of 6 feet and width of 11 feet?
(A) 33 ft. (B) 66 ft. (C) 17 ft. (D) 34 ft. (E) N.O.T.

17. Find the next number in the sequence: 1, 3, 6, 11, 18, …
(A) 23 (B) 29 (C) 21 (D) 25 (E) N.O.T.

18. Let p represent the price of AirPods. An electronics store places them on sale with cost $0.78p$. How much is the markdown?
(A) 78% (B) 22% (C) 7.8% (D) 2.2% (E) N.O.T.

19. If two six-sided dice are rolled, which of the following has the highest chance of occurring?
(A) Rolling a 2 (B) Rolling a 3 (C) Rolling a 6 (D) Rolling a 9 (E) Rolling a 10

20. Translate the following sentence into symbols: "Three is eleven less than one-third the sum of a number and seven."

(A) $3 = 11 - \frac{1}{3}(x + 7)$ (B) $3 = 11 - \frac{1}{3}x = 7$

(C) $3 = \frac{1}{3}(x + 7) - 11$ (D) $3 = \frac{1}{3}x + 7 - 11$ (E) N.O.T.

21. What is $18 \div \left(-\frac{9}{2}\right)$?

(A) –4 (B) –81 (C) –1 (D) –2 (E) N.O.T.

22. What is $3 + 3 - 3 \times 3 \div 3(-3)$?

(A) –9 (B) 3 (C) 7 (D) 9 (E) N.O.T.

23. Find the mean of the following list of numbers: 4, 7, 3, 11, 5, 8, 4.

(A) 7 (B) 4 (C) 8 (D) 6 (E) N.O.T.

24. What is the value of $2^5 + 2^5 + 2^5 + 2^5$?

(A) 2^{20} (B) 2^7 (C) 8^5 (D) 8^{20} (E) N.O.T.

25. If the height of a triangle is 7 feet, what must the base be for the area to be 56 square feet?

(A) 16 ft. (B) 8 ft. (C) 28 ft. (D) 7 ft. (E) N.O.T.

26. Suppose you have two complementary angles. If one angle is 54°, what must be the other angle?

(A) 36° (B) 126° (C) 306° (D) 46° (E) N.O.T.

27. Which of the following is true?

(A) $1.5 < \frac{6}{5}$ (B) $2\frac{3}{4} > \frac{22}{7}$ (C) $5^4 < 4^5$ (D) $-\sqrt{6} > -\sqrt{3}$ (E) N.O.T.

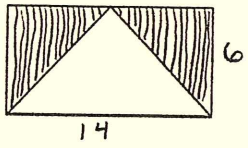
28. What is $720 \div 0.0001$?

(A) 0.072 (B) 7200000 (C) 720000 (D) 0.72 (E) N.O.T.

29. Determine the median of the following list of numbers: 3, 15, 7, 8, 5, 5, 6, 13, 19.

(A) 9 (B) 5 (C) 7 (D) 13 (E) N.O.T.

30. What is the area of the shaded region?



(A) 84 sq. units (B) 42 sq. units (C) 20 sq. units (D) 24 sq. units (E) N.O.T.

31. Determine the slope of a line that is perpendicular to the line $y = -\frac{3}{2}x + 4$.

(A) $m = \frac{3}{2}$ (B) $m = \frac{2}{3}$ (C) $m = -\frac{2}{3}$ (D) $m = -\frac{6}{3}$ (E) N.O.T.

32. Which of the following equations are parallel to each other?

(A) $y = 2x - 4$, $y = -2x - 4$ (B) $y = \frac{1}{2}x - 1$, $y = -\frac{1}{2}x + 1$ (C) $y = \frac{4}{5}x + 1$, $y = \frac{5}{4}x + 1$ (D) $y = 3x - 2$, $y = 6x - 2$ (E) N.O.T.

33. The radius of the moon is approximately 1079.4 miles. What is the diameter of the moon?

(A) 539.7 miles (B) 2158.8 miles (C) 3238 miles (D) 359.8 miles (E) N.O.T.

34. The distance from Earth to Mars in the fall is approximately 140 million miles. NASA's Curiosity Rover tool about half a year to arrive to Mars. Assuming the speed was constant throughout the trip, how fast was the Curiosity Rover traveling?

(A) 180 mil mi/yr (B) 140 mil mi/yr (C) 70 mil mi/yr (D) 280 mil mi/yr (E) N.O.T.

35. In March of 2019, there were about 250 million Fortnite players. If 68% of Fortnite players spend money in the game, then how many players do not spend money on Fortnite?

(A) 7,812,500 (B) 3,676,471 (C) 178,000,000 (D) 80,000,000 (E) N.O.T.

36. What is the sum of all angles in a triangle?

(A) 45° (B) 90° (C) 180° (D) 360° (E) N.O.T.

37. Which of the following numbers is not divisible by 3?

(A) 162 (B) 193 (C) 315 (D) 459 (E) N.O.T.

38. What values of x satisfy the inequality $x^2 - 5x - 24 < 0$?

(A) $-3 < x < 8$ (B) $-8 < x < 3$ (C) $3 < x < 8$ (D) $x \geq 0$ (E) N.O.T.

39. Solve the equation $|x + 7| = 4$.
(A) $x = -3$ (B) $x = -11$ (C) $x = 4$ (D) Both A and B (E) N.O.T.

40. If today is Monday, then what day would it be in 450 days?
(A) Monday (B) Wednesday (C) Thursday (D) Sunday (E) N.O.T.

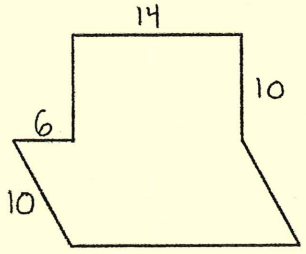
41. What is the prime factorization of 594?
(A) $2 \times 3^3 \times 11$ (B) $2 \times 27 \times 11$ (C) $2 \times 3 \times 11$ (D) $2 \times 9 \times 11$ (E) N.O.T.

42. Suppose you have 5 of the following candy bars: Snickers, Hershey's, Kit Kat's, Milky Way, and Reece's. How many different ways can you arrange those 5 bars?
(A) 50 (B) 25 (C) 120 (D) 100 (E) N.O.T.

43. A cellphone number is comprised of 10 digits. The first 3 digits is made up of three numbers called the area code. The first number cannot be 0 or 1. The next 7 digits is made up of seven numbers where the first number cannot be 0. Which of the following best represents how many cellphone numbers can exist?
(A) 10^{10} (B) $10^8 \times 9 \times 8$ (C) $10!$ (D) $10!\,9!\,8!$ (E) N.O.T.

44. What value of x makes the equation $3^x = \frac{1}{27}$?
(A) 3 (B) 9 (C) -9 (D) -3 (E) N.O.T.

45. Find the area of a building with the following dimensions. Note that two sides opposite to each other are parallel.



(A) 300 sq. units (B) 200 sq. units (C)160 sq. units (D) 140 sq. units (E) N.O.T.

46. An imaginary number is a number that is expressed in terms of the square root of a negative number. We represent such a number with i, where $i = \sqrt{-1}$. What is the value of i^{18}?
(A) i (B) -1 (C) $-i$ (D) 1 (E) N.O.T.

47. What is $5\frac{4}{5} - 3\frac{7}{10}$?

(A) $2\frac{3}{5}$ (B) $2\frac{3}{10}$ (C) $2\frac{1}{10}$ (D) $2\frac{1}{5}$ (E) N.O.T.

48. Brianna has a bag of Skittles. There are 15 Skittles left in the bag. The colors of Skittles remaining are: 5 red, 3 orange, 4 purple, and 3 green. What is the probability of getting a red Skittle or a purple Skittle?

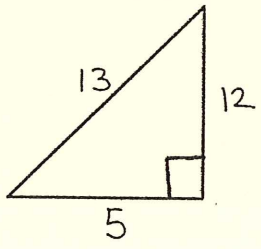
(A) $\frac{1}{3}$ (B) $\frac{3}{5}$ (C) $\frac{2}{5}$ (D) $\frac{1}{5}$ (E) N.O.T.

49. The product of 1250×985 is closest to which of these?

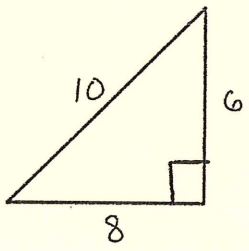
(A) 100,000 (B) 10,000,000 (C) 10,000 (D) 1,000,000 (E) N.O.T.

50. A Superhero Triangle is a triangle where the value of the perimeter is the same as the value of its area. Which of the following triangles is not a Superhero Triangle?

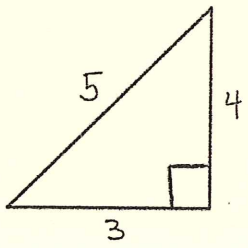
(A)



(B)



(C)



(D) All of them are not Superhero Triangles.

(E) N.O.T.