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2025-2026 Math League Preliminary Round

(Grade 7)

(Unofficial version, for reference only)

1. A test that starts at 8:13 AM and ends at 11:43 AM consists of four test periods of equal length separated by ten-minute breaks. At what time does the third test period begin?

   A) 9:43 AM B) 9:53 AM C) 10:03 AM D) 10:48 AM

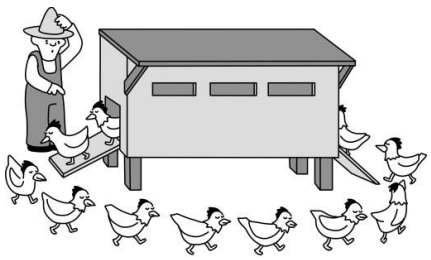
2. The probability of rolling a total of 18 on three standard six-sided dice (with sides numbered from 1 to 6) is

   A) $\frac{1}{216}$ B) $\frac{1}{18}$ C) $\frac{1}{6}$ D) $\frac{3}{6}$

3. Increasing the length of 2 sides of a square by 50% and the other 2 sides by 150% increases the perimeter of the figure by

   A) 50% B) 75% C) 100% D) 125%

4. Farmer Kyle kept counting his chickens. The first time he looked he had 50, and the number went up by 7 each time he looked. How many chickens did Kyle see when he looked for the 25th time?



   A) 175 B) 218

   C) 225 D) 232

5. At most how many diagonals can be drawn in a regular hexagon?

   A) 6 B) 9 C) 15 D) 18

6. $24 + 25 + 26 + \ldots + 98 + 99 + 100 =$

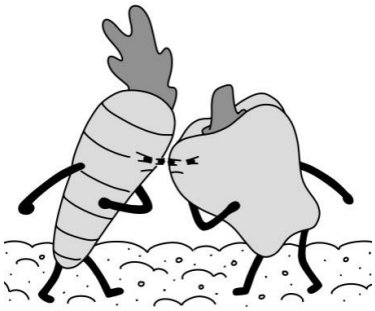
   A) 4000 B) 4650 C) 4712 D) 4774

7. How many perfect squares are divisors of 2025?

A) 2 B) 3 C) 5 D) 6

8. If one-fourth of the square of the number of rabbits in my garden is equal to the number of rabbits in my garden, how many rabbits are in my garden?

A) 1 B) 2 C) 4 D) 16

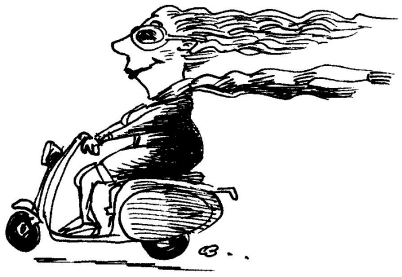


9. In my garden, the ratio of carrots to tomatoes is 3:5, tomatoes to cucumbers is 7:4, and cucumbers to peppers is 6:9. What is the ratio of peppers to carrots?

A) 10:7 B) 8:9 C) 3:1 D) 4:1

10. Grandma is 100. Her age in months contained two more digits than her age in years during all *or part* of _?_ of those 100 years.

A) 16 B) 17 C) 18 D) 19



11. Today, Grandma rode 20% further than she rode on Sunday, in 20% less time than Sunday's ride took. Her speed today was _?_ % of her speed on Sunday.

A) 140 B) 150 C) 160 D) 170

12. $\sqrt{\sqrt{9^{16}}}$ =

A) 3^2 B) 9^2 C) 9^4 D) 9^8

13. The number $\frac{1}{111}$ is _?_ % of the number 111 (to the nearest 0.001%).

A) 0.008% B) 0.009% C) 0.901% D) 1.000%

14. If $50g + 60h = 70h$, then $h - g =$

A) $0.5g$ B) $4g$ C) $5g$ D) $10g$

15. If $t^{-111} > t^{-222}$, then t could equal

A) -2 B) $-\frac{1}{2}$ C) $\frac{1}{2}$ D) 2

16. If $3x + 4y = 21$ and $5x + 9y = 1$, then $x - y =$

A) 4 B) 11 C) 22 D) 41

17. If x is an integer, what is the least possible value of $|18 - 5x|$?

A) 2 B) 3 C) 4 D) 5

18. If $x \blacklozenge y = (x - y)^2 + 2y$, then what is the value of $20 \blacklozenge 23$?

A) 31 B) 37 C) 49 D) 55

19. $(x - 1)(x - 2)(x + 3)(x + 4) = (x^2 + 3x - 4) \times (\ ?\ )$

A) $x^2 + x - 1$ B) $x^2 + x - 6$ C) $x^2 - x + 1$ D) $x^2 - x + 6$

20. If $4^{20x} \times 8^{24x} = 16^{1456}$, then $x =$

A) 20 B) 28 C) 32 D) 52

21. $|2x| + |-3x| =$

A) $|-x|$ B) $-|x|$ C) $-|5x|$ D) $5|x|$

22. How many different ordered pairs of positive integers (a, b) satisfy $(ab)^2 = 2025$?

A) 3 B) 6 C) 12 D) 24

23. There are exactly 26 positive integer divisors of 2^{25}, but there are smaller positive integers with exactly 26 positive integer divisors. What is the *least* positive integer with exactly 26 positive integer divisors?

A) 7776 B) 12 288 C) 73 728 D) 1 062 882

24. The first 2026 positive integers are listed in order as one very long number: 123456789101112131415161718 19 ... 202420252026. What is the 2026th digit in this long number?

A) 1 B) 2 C) 7 D) 8

25. If n is the smallest positive integer such that $99n$ is the cube of an integer, and d is the sum of the digits of n, then d is

A) 27 B) 18 C) 12 D) 9

26. Bobby writes each of the 5 letters in his name (in lowercase) on tiles and mixes them up in a bag. He then draws one tile at a time from the bag at random and writes down the letter on each tile in the order in which he draws them. How many different sequences of letters could possibly be the result?

A) 10 B) 20 C) 40 D) 120

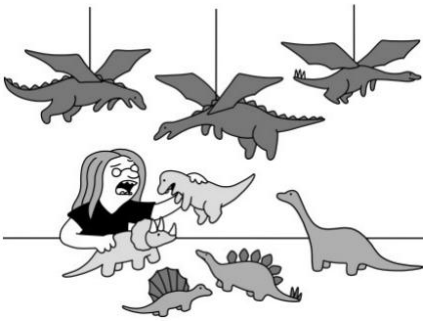
27. An ice cream truck is selling "super sundaes." A customer must choose 3 of 20 ice cream flavors, plus 2 of the 10 different wet toppings, plus 2 of the 5 different dry toppings. How many different super sundaes can be made?



A) 1195 B) 6950

C) 513 000 D) 12 312 000

28. In my model collection I have r dinosaurs and n dragons. The ratio r:n would be 1:3 if I had one less dinosaur, but it would be 1:4 if I just had 29 additional dragons. What would r:n be if I had 2 more of each?



A) 4:11 B) 3:13 C) 5:12 D) 67

29. If $s > 0$, $t > 0$, and $s = 5 - 2t$, which of the following could be the value of $30s + 70t$?

A) 150 B) 155 C) 175 D) 180

30. If $x = y + 4$, then $y^2 + 10y + 12 =$

A) $x^2 - 6x - 3$ B) $x^2 - 6x + 9$ C) $x^2 + 6x$ D) $x^2 + 2x - 12$

31. If $(2^x)(5^y) = 160\,000$, what is the value of $x + y$?

32. What is the only real number x for which $x^{2025} + x = x^{2024} + 1$?

33. I wrote a list of the squares of the first 2024 positive integers. How many of these squares leave a remainder of 1 when divided by 4?

34. What is the greatest integer $n < 0$ that satisfies $\frac{-1}{50} < \frac{3}{n}$?

35. If $[x]$ denotes the greatest integer $\leq x$, what is the greatest value of $x < 2024$ for which $[x] \times (x - [x]) = 2$?

Answers										
Question	1	2	3	4	5	6	7	8	9	10
Answers	**C**	**A**	**C**	**B**	**B**	**D**	**D**	**C**	**A**	**D**
Question	11	12	13	14	15	16	17	18	19	20
Answers	**B**	**C**	**A**	**B**	**D**	**D**	**A**	**D**	**B**	**D**
Question	21	22	23	24	25	26	27	28	29	30
Answers	**D**	**B**	**B**	**C**	**C**	**B**	**C**	**A**	**B**	**D**
Question	31	32	33	34	35					
Answers	**12**	**1**	**1012**	**-151**	$2023\frac{2}{2023}$					