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2023-2024 Math League Preliminary Round

(Grade 4)

(Unofficial version, for reference only)



1. Every time Bobby blows 5 bubbles, 4 of them pop in his face. How many bubbles pop in his face if he blows 20 bubbles?

   A) 12 B) 16 C) 19 D) 25

2. How many hours are there in the merry month of May?

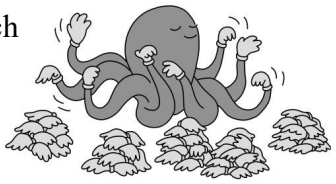
   A) 360 B) 372 C) 720 D) 744

3. Which of the following numbers has the largest remainder when divided by 6?

   A) 44 B) 55 C) 66 D) 77

4. The sum of all the factors of 49 is

   A) 49 B) 50 C) 56 D) 57



5. Gomer has 5 piles of identical gloves. If there are a dozen gloves in each pile, how many pairs of gloves does he have all together?

   A) 30 B) 40

   C) 60 D) 120

6. If the product of two whole numbers is 36, which of the following numbers could be their sum?

   A) 13 B) 14 C) 16 D) 19

7. If Sarah walks at a pace of 4 km per hour, how many minutes will it take her to walk 3 km?

   A) 30 B) 45 C) 75 D) 80

8. Which of the following could be the sum of three consecutive odd numbers?

   A) 47 B) 49 C) 51 D) 53

9. There are 10 boxes of apples, with each box containing 24 apples. If one of every three apples is removed from each box, how many apples will remain all together?



A) 160 B) 140 C) 120 D) 80

10. If the letters of the words MATH LEAGUE are randomly rearranged, what is the probability that the first letter will be a vowel?

A) 25% B) 37.5% C) 40% D) 50%

11. $20 \times (23 + 24 + 25) = 24 \times$ __?__

A) 60 B) 62 C) 64 D) 72

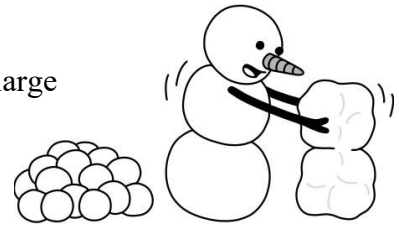
12. Ann, Beth, and Carl all watched a movie last Sunday. If Ann watches one every 4 days, Beth one every 5 days, and Carl one every 6 days, when will they next watch a movie again on the same day?

A) Monday B) Thursday C) Friday D) Saturday

13. The smallest prime number that is the sum of 4 different primes is

A) 11 B) 17 C) 19 D) 23

14. If I have 30 small snowballs and use ten of them to make two large snowballs, how many snowballs of all sizes do I now have?



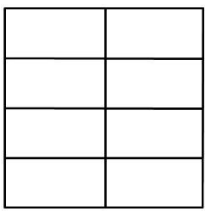
A) 18 B) 20

C) 22 D) 24

15. There are twenty children at the playground. They all enjoy either running or skipping, and some enjoy both. If 18 enjoy running and 16 enjoy skipping, how many enjoy both activities?

A) 8 B) 10 C) 12 D) 14

16. A square is divided into 8 congruent rectangles, as shown. In all, there are __?__ different sizes of rectangles in the figure.



A) 6 B) 7 C) 8 D) 10

17. If I cut a square into 2 identical pieces, neither piece can ever be a

A) square B) triangle C) rectangle D) trapezoid

18. You paid 80¢ for 2 cookies. I bought 10 cookies for $3.00. How much more did you pay for each cookie than I paid for each cookie?

A) $0.05 B) $0.10 C) $0.20 D) $0.40

19. There were 25 red marbles and 15 blue marbles in a bag. Lisa randomly took 10 marbles from the bag and Ben took the rest. Which of the following statements is always true?

A) Ben took more red marbles than Lisa took.

B) Lisa took at least one red marble.

C) Lisa took more marbles than the number of blue marbles Ben took.

D) Ben took more blue marbles than Lisa took.



20. How many integers greater than 9 and less than 100 have 3-digit squares?

A) 32 B) 31 C) 22 D) 21

21. The last 2 digits of a 3-digit number are 2 and 6. What could the hundreds digit be if the number is divisible by 6?

A) 2 B) 4 C) 6 D) 8

22. Joe counts by 2s: 2, 4, 6, . . . , stopping at 102. Keira counts by 3s: 3, 6, 9, . . . , stopping at 102. How many of Joe's numbers match Keira's?

A) 17 B) 18 C) 34 D) 36

23. Abe read a 62-page book. He read 2 pages the first day. On each following day, Abe read twice as many pages as he had read the day before, until he finished the book. How many days did it take Abe to read the whole book?

A) 4 B) 5 C) 6 D) 7

24. How many three-digit whole numbers are multiples of 6 but not of 4?

A) 74 B) 75 C) 149 D) 150

25. Sharon has equal numbers of pennies, nickels, and dimes. Their total value is a whole number of dollars. What is the least amount of money that Sharon could have?



A) \$1.00 B) \$2.00

C) \$4.00 D) \$8.00

26. Pearl creates three two-digit numbers using the digits 1, 2, 3, 4, 5, and 6 exactly once each. The three numbers add up to 102. Which of the following cannot be one of the three two-digit numbers?

A) 32 B) 34 C) 41 D) 43

27. How many 2-digit primes are the product of two other primes?

A) 0 B) 1 C) 4 D) 7

28. The sum of the digits of the least common multiple of 28 and 42 is

A) 12 B) 13 C) 15 D) 21

29. Decreasing a number by 40% is the same as multiplying it by

A) 0.4 B) 0.6 C) 0.8 D) 1.4

30. Ri has a bag of nickels and Ti has a can of quarters. The coins in Ri's bag are worth \$80, and the coins in Ti's can are worth twice that. The number of coins Ri has is _?_ greater than the number Ti has.



A) 800 B) 960

C) 1280 D) 1440

31. Zak challenged himself to hike exactly 1 million cm, and he succeeded! Zak hiked _?_ km!

A) 1 B) 10 C) 100 D) 10 000

32. There are 7th and 8th graders in my school in a 4:5 ratio. In all, the total number of 7th and 8th graders could be

A) 40 B) 44 C) 45 D) 50

33. $-4^4 + 4^4 + (-4)^4 \times 4^4 =$ _?_

A) 4^4 B) 4^8 C) 3×4^8 D) 4^{16}

34. On my farm, $\frac{1}{8}$ of the sheep were born in April, $\frac{1}{6}$ of the sheep were born in May, and there were 6 more sheep born in May than in April. How many sheep were born in April?



A) 144 B) 42 C) 24 D) 18

35. The average of a dozen 12's and a half-dozen 6's is

A) 8 B) 9 C) 10 D) 18

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