Mission Math Winter Competition 2026 3-5 Exam

You will have 40 minutes to complete as much of this test as you can. There are 30 free response questions total, and questions are arranged roughly from easiest to most difficult. Units are not needed. Write answers on the given line below each question. Calculators are not allowed. Do not begin the test until told to do so. Good Luck!

Full Name: _____

Grade: _____

Age: _____

1. Steve works a summer job. He makes $300 for 15 hours of work. How much money does he get paid per hour?

_____

2. Given $7(x+3) = 4(x+3) + 6$, what is the value of x?

_____

3. What is 130% of 40% of 500?

_____

4. A rectangle has perimeter 100 and area 600. What is the length of the longer side?

_____

5. The sum of three consecutive integers is 231. What is the value of the largest number?

_____

6. Rowan has 3 times as many moon rocks in his collection as Carson. Together they have 48 moon rocks. How many moon rocks does Carson have?

_____

7. Citra has a box containing some apples. She adds 12 more apples into the box. Then, Robert takes out one-third of all the apples that are in the box at that moment. Now, the box has 28 apples in it. How many apples were in the box before Citra added the 12 apples?

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8. If Billy reads 5 pages per minute, how long will it take him to complete a 120 page book?

_____

9. Aashita, Adwita and Ananya all go to Lee's marketplace where they each buy popcorn and mac&cheese for \$5 and \$10. They have to pay tax of 20%. how much do they pay in total in dollars?

_____

10. What is the greatest common divisor of 320 and 576?

_____

11. If a rectangular prism has edges of length 5, 6, and 7, what is the volume of the prism?

_____

12. Sreeram went to the pet store and bought 28 beta fish, 3 were pink, 6 were blue, 5 were yellow and half of what was remaining was neon green. What is the probability that if one was randomly chosen, it would be neon green? Express your answer as a common fraction.

_____

13. How many different ways are there to arrange the word $MANGO$?

_____

14. A jar contains 8 strawberry candies, 6 chocolate candies, 4 mint candies, and 7 caramel candies. Gary eats 2 candies. What is the probability both were the same flavor? Express your answer as a common fraction.

_____

15. A rectangle measures 10 cm by 8 cm. A smaller 4 cm by 3 cm rectangle is cut out from this rectangle, forming an L-shaped figure. What is the perimeter of the L-shaped figure?

_____

16. There is a bag with 9 yellow marbles, 11 green marbles, and 13 blue marbles. What is the minimum number of marbles you can pick to guarantee you have at least 10 of 1 color of marbles?

_____

17. $f(x) = x^3 - 3$ and $g(x) = 2x - 1$. What is the value of $f(g(3))$?

_____

18. Find the smallest three-digit number that is divisible by 9 and whose digits add up to 27.

_____

19. A cylinder and a cone have the same volume. What is the ratio of the height of the cone to the cylinder, given that both the radii of the cone and the cylinder are the same?

_____

20. Integers x and y satisfy $x^2 + 2x - y^2 = 16$. Find the sum of all possible values of $x + y$.

_____

21. A positive integer N has exactly 9 positive divisors. If the sum of its divisors is 91, what is N?

_____

22. What is the smallest positive integer that leaves a remainder of 1 when divided by 2, 3, 4, 5, and 6?

_____

23. There are 10 different people seated around a round table. How many distinct seating arrangements are there if two arrangements that differ only by a rotation are considered the same?

_____

24. Find the number of integers less than 100 such that the sum of their digits is equal to a perfect square.

_____

25. Square $ABCD$ with side length 4 has E on the interior of CD so that $CE = 3$. If AE intersects BC at F, what is DF? Express your answer in its simplest radical form.

_____

26. If $x + 1/x = 9$, what is $x^3 + 1/x^3$?

_____

27. Chords AB and CD are drawn on circle ω such that they interest at point X. Given that $AX = 6$, $BX = 4$, and $CX = 3$ what is the length of DX?

_____

28. The cyclic quadrilateral $ABCD$ has side lengths $4, 6, 10, 12$. What is the area of $ABCD$?

_____

29. How many distinct 5-digit numbers can be formed using the digits

$$1, 2, 3, 4, 5$$

exactly once such that no two consecutive digits differ by 1?

_____

30. Find the real number x such that

$$\sqrt{x + \sqrt{2x - 1}} + \sqrt{x - \sqrt{2x - 1}} = 3$$

Express your answer as a common fraction.

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