Spirit of Math®

GRADE 8

International Spirit of Math® Contest 2026

Releasing the Genius®



INSTRUCTIONS

1. You have **75 minutes** to write the contest
2. The contest is multiple-choice with four choices for each question.
3. Write the **CAPITAL** letter of the answer you choose on the line to the right of each question and fill in the corresponding circle on the **Contest Answer Sheet**.
4. Each question answered correctly is worth one mark, and the sum of the correct answers is the score.
5. Marks are not taken off for wrong answers.
6. **No calculators** or other counting tools are allowed.

Student Name: _____ **Score:** /40

1) The value of $-2^3 - (-3)^3$ is

A) -35 B) -19 C) 19 D) 35 ____

2) When the numbers 2.22, $2\frac{1}{5}$, 2.02, $2\frac{1}{10}$, 2.202 are ordered from least to greatest, the number in the middle is

A) 2.2 B) 2.22 C) 2.202 D) 2.1 ____

3) The average of five numbers is 6. Two of the numbers are 7 and 9. The sum of the other three numbers is

A) 8 B) 10 C) 14 D) 16 ____

4) The value of $64^{\frac{2}{3}}$ is

A) 4 B) 8 C) 16 D) 128 ____

5) Subtract the smallest prime number from the smallest composite number. What do you get?

A) 1 B) 2 C) 3 D) 4 ____

6) If 8% of a number is 6, what is the number?

A) 75 B) 70 C) 60 D) 55 ____

7) What is the 2026th letter in this sequence? ABCDEDCBAABCDEDCBAABCDEDCBA…

A) A B) B C) C D) D ____

8) What is the greatest common factor of 210 and 63?

A) 7 B) 21 C) 42 D) 63 ____

9) Consider the following data set: 12, 6, 14, 12, and 16. Which of the following statements is true?

A) The data set has no mode. C) The median of the data is 14. ____

B) The mean of the data is 12. D) The range of the data set is 4.

10) The product of three consecutive natural numbers is 990. What is their sum?

A) 26 B) 28 C) 30 D) 32 ____

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11) How many cubes of side length x can be packed into a cubic box of side length $3x$?

A) 9 B) 15 C) 18 D) 27 ____

12) What is $\frac{7}{27} + (\frac{1}{3})^2 - \frac{4}{9} + \frac{2}{9} \cdot \frac{3}{2}$?

A) $\frac{7}{27}$ B) $\frac{2}{9}$ C) $\frac{8}{27}$ D) $\frac{4}{9}$ ____

13) If $x = 5$ and $y = 7$ and $z = -4$, then what is $y^3 - x^3 + xyz$?

A) 58 B) 78 C) 218 D) 358 ____

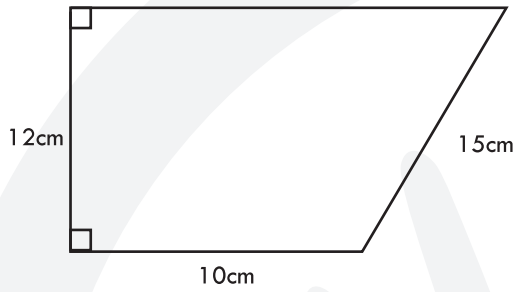
14) Solve for x if $3^{7x-9} = 27^4$

A) 6 B) 5 C) 4 D) 3 ____

15) The mean of all the prime numbers between 50 and 70 is some number x. What is the greatest prime number less than x?

A) 59 B) 60 C) 61 D) 67 ____

16) What is the area of the figure below?



A) $144cm^2$ B) $174cm^2$ C) $200cm^2$ D) $210cm^2$ ____

17) How many numbers are there between 500 and 600 whose digits sum to 13?

A) 11 B) 10 C) 9 D) 8 ____

18) Three fair dice are rolled. What is the probability that their sum is 17?

A) $\frac{1}{216}$ B) $\frac{1}{72}$ C) $\frac{1}{36}$ D) $\frac{1}{24}$ ____

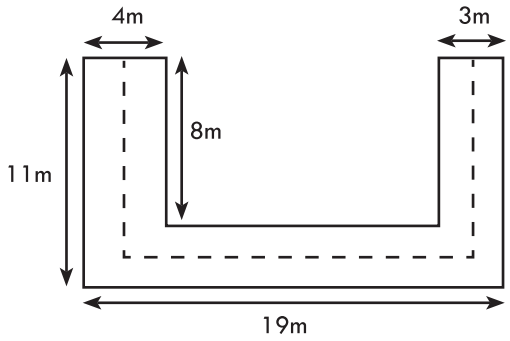
19) Old Macdonald is throwing a party for his friends on his cow farm. At the peak of the party, he counts 44 heads and 142 legs. How many more cows were there than humans?

A) 8 B) 9 C) 10 D) 12 ____

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20) What is the length of the path down the centre of the corridor as pictured below?



A) 34.5 m B) 35 m C) 37 m D) 39.5 m ____

21) The lengths of the three sides of a triangle are 7 cm, (x + 4) cm, and (2x + 1) cm. If the perimeter of the triangle is 36 cm, what is the length of the longest side?

A) 15 cm B) 16 cm C) 17 cm D) 18 cm ____

22) The expression $6^{35} \cdot 8^{35}$ is equal to

A) 48^{70} B) $2^{35} \cdot 12^{35}$ C) 48^{1225} D) $2^{70} \cdot 12^{35}$ ____

23) How many integers satisfy the inequality $1 < x^2 \leq 25$?

A) 4 B) 6 C) 8 D) 11 ____

24) What is the difference between the sum of the first *n* even integers and the first *n* odd integers?

A) –n B) n C) –1 D) 1 ____

25) The lengths of the sides of an iscosceles triangle are 9cm and 20cm. What is the perimeter of the triangle?

A) 29 cm B) 38 cm C) 49 cm D) Not possible to determine ____

26) If yesterday was Tuesday, what day of the week will it be 286 days after tomorrow?

A) Wednesday B) Thursday C) Saturday D) Sunday ____

27) A rectangle's length is increased by 40%, and its width is decreased by 40%. How does the area of the rectangle change?

A) Increases by 16% C) Increases by 1.6% ____

B) Decreases by 16% D) Does not change

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28) If the circumference of a circle is $\frac{1}{4}$ of its area, what must be the radius of the circle?

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

29) On a math contest with 32 questions, Jimmy got 200% more questions right than he got wrong. What was his score?

A) 60% B) 70% C) 75% D) 80% ____

30) How many triangles can be drawn by connecting points in the 2 × 4 lattice grid below?



A) 48 B) 52 C) 56 D) 60 ____

31) What is the value of $\frac{1+2+3+\cdots+79+80}{1+3+5+\cdots+33+35}$?

A) 4 B) 6 C) 8 D) 10 ____

32) A pattern is created using dots arranged to form nested hexagon-shaped figures. The first three figures in this pattern use 6 points, 15 points, and 28 points, respectively (as shown). If the pattern continues in the same way, how many points are needed to create Figure 5?



A) 45 B) 56 C) 66 D) 72 ____

33) At exactly 12:00, the minute hand of a clock begins moving counterclockwise at the same constant speed that it normally moves clockwise. The hour hand continues moving normally. At the actual time of 12:40, what is the angle between the minute hand and the hour hand?

A) 90° B) 100° C) 120° D) 140° ____

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34) Billy filled a cylindrical pail with water to a depth of 30 cm. He poured all the water into a rectangular tank measuring 60 cm x 60 cm 10 cm. After pouring, the tank was $\frac{3}{4}$ full. What was the radius of Billy's cylindrical pail?

A) $\frac{30}{\sqrt{\pi}}$ B) $\frac{300}{\sqrt{\pi}}$ C) $\frac{900}{\sqrt{\pi}}$ D) $\frac{300}{\pi}$ ____

35) A circle passes through the vertices of a triangle with sides of length 3.3 cm, 5.6 cm and 6.5 cm. The radius of the circle, in cm, is

A) 2.3 B) 3.2 C) 3.25 D) 3.85 ____

36) Working alone, Painter A can complete a mural in 4 days, Painter B can complete the same mural in 6 days, and Painter C can complete it in 12 days. The three painters begin working together at their constant rates. After 1 day, Painter C stops working, and Painters A and B continue working together until the mural is finished. How long does it take to complete the mural in total? Express your answer as a fraction of a day in simplest form.

A) $\frac{3}{2}$ B) $\frac{5}{2}$ C) $\frac{9}{4}$ D) $\frac{11}{5}$ ____

37) Three vertices of a regular hexagon are chosen at random. What is the probability that the three chosen vertices form an equilateral triangle?

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{1}{10}$ ____

38) Sam lights two candles of the same height at the same time. He notices that the first one burned out in 4 hours but that the second candle lasted twice as long. Assuming the candles burn at constant rates, at what point was the second candle twice as tall as the first?

A) 1 hour 30mins B) 2 hours 20 mins C) 2 hours 40 mins D) 3 hours ____

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39) Ryan's average on five tests was 87%. The average of the four highest test scores was 91.25%, and the average of the four lowest test scores was 83.75%. What was the sum of the highest mark and lowest mark of Ryan?

A) 160 B) 170 C) 180 D) 185 ____

40) A sports club surveyed its members and found that 100 members play at least one of the following sports: basketball, tennis, or badminton. Of these members, 35 play basketball, 30 play tennis, and 61 play badminton. In addition, 12 members play both basketball and tennis, 11 play both tennis and badminton, and 13 play both basketball and badminton. How many members play exactly one sport?

A) 54 B) 64 C) 72 D) 84 ____

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