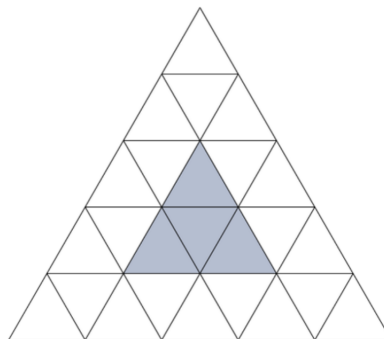


2023 Gauss Math Tournament Sprint Round (Div. 1)

June 10, 2023

1. To make an equilateral triangle with side length 6 ft, how many 3 ft sticks do you need to make the perimeter?
2. You measure one side length of a regular hexagon to be 4 cm. What is the hexagon's perimeter in centimeters?
3. The ratio of boys to girls in a class is 4 : 5. If there are 36 students in total, how many girls are in the class?
4. If $\triangle = 2$, what is the value of \square if $3\triangle + 2\square = 16$?
5. A car traveled at a speed of 60 miles per hour for 210 miles. For how many hours did the car drive?
6. The sum of two numbers is 45, and their difference is 15. What is the smaller number?
7. To return home, Pierce has to travel 30 meters west and 40 meters north. How far is the straight-line distance from Pierce where he was to his home?
8. A basketball team won 17 out of 24 games. In order to continue to the next championship level, the team must win more than 75% of its total games. At least how many more games must they win for this team to advance to the next championship level?
9. The scale on a map is 1 : 500,000. If two landmarks are 15 centimeters apart on the map, what is the actual distance between them in kilometers?
10. A box contains 12 red balls, 8 blue balls, and 4 green balls. If one ball is randomly chosen, what is the probability of selecting a blue ball?
11. The perimeter of a rectangle is 36 meters. If the length is 10 meters, what is the width of the rectangle?
12. Rose surveyed her class of 23 students and found that 13 people had a dog and 7 people had a cat. If 6 students do not have either pet, how many students have both a dog and a cat?
13. The sale price of a giant dinosaur plush is 57 dollars after a 25% discount. What was its original price in dollars?
14. A recipe calls for $2\frac{1}{2}$ cups of flour, but you only have $\frac{3}{4}$ cup of flour. What fraction of the recipe can you make?
15. A container can hold 2 liters of water. If 750 milliliters of water is poured into the container, how many more liters of water is needed to fill it to its maximum capacity?
16. The temperature increased 20% from Monday to Tuesday and decreased 15% from Tuesday to Wednesday. What was the overall temperature change from Monday to Wednesday in percentage?

17. If $2\square + 3 = 9$, and $5\triangle + 7\square = 36$, what is the value of $\frac{\triangle}{\square}$?
18. The volume of a cube is 512 cubic inches. What is the length of each side in inches?
19. A rectangular garden has a length that is twice its width. If the perimeter of the garden is 60 meters, what is its area in square meters?
20. The sum of three consecutive integers is 84. What is the largest of the three integers?
21. A bakery sold 128 pastries on Monday, 150 pastries on Tuesday, and 184 pastries on Wednesday. What is the average number of pastries sold per day?
22. What is x if $\frac{(x+2023)\cdot 2023-2023}{2023} = 2023$?
23. A person is 'popular' if 50% of their school knows their name. If 37% of John's school knows John and his school has 600 people, how many more people need to know John's name for John to be 'popular'?
24. A bag has 84 pencils. Another bag has 20 pencils. If each handful contains 8 pencils, how many handfuls are required to transfer pencils from the first bag to the second bag so that the two bags have an equal number of pencils?
25. Simplify the expression $\frac{100^2}{2\cdot 10^2}$.
26. A pizza is divided into 8 equal slices. After eating some of it, $\frac{3}{4}$ of the pizza is left. What is the ratio between the number of slices eaten and the number of slices left?
27. Find the area of a triangle with a hypotenuse of 10 and a side length of 8.
28. Jay draws all the diagonals of an octagon. How many diagonals did Jay draw?
29. What is the area of the shaded portion if the entire figure has a total area of 50?



30. Zara has 2 coin purses. Each one contains 3 nickels, 4 dimes, and 1 quarter. How much money does Zara have in dollars? (Enter your answer as a decimal WITHOUT a dollar sign)
31. Andrew's pool is 20 meters wide, 30 meters long, and 20 meters deep. If he only wants to fill it up $\frac{3}{4}$ of the way, how much water should he add to his pool in cubic meters?
32. A taxi driver charges \$5.50 for booking a ride and \$1.50 for every mile traveled. If Berenice books a taxi ride that goes 60 miles, how many dollars does she need to pay? (Enter your answer as a decimal WITHOUT a dollar sign)
33. The area of a square is 64 square units. What is the length of each side?
34. Shirley is buying fruits from the supermarket for her grandmother. Her list says that she needs 2 packs of blueberries, 3 apples, and 4 oranges. She knows that 1 pack of blueberries costs \$4.00, 1 apple costs \$1.75, and 1 orange costs \$1.50. How many dollars does Shirley have to spend at the supermarket on fruits? (Enter your answer as a decimal WITHOUT a dollar sign)
35. The sum of three children's ages is 75. The oldest age is greater than the sum of the other two ages by 15. The youngest age is 12. What is the age of the oldest child?
36. In a video game, Katheryn has 100 coins. She wants to buy 4 bows, which costs 13 coins each, and 5 arrows, which cost 5 coins each. How many coins will she have left when she has bought everything she wants?
37. Angela's age is three times Edgar's age. In 8 years, Angela's age will be twice Edgar's age. How old is Angela?
38. The average weight of 6 boys is 100 pounds. The average weight of 4 girls is 90 pounds. What is the average weight in pounds of these 10 people?
39. A very long chain of beads has the pattern 2 red beads, 3 green beads, and 4 yellow beads. What is the color of the 600th bead?
40. What is the measure of the degree of the smaller angle between the hands of a clock at 6:30?