



12th Annual Middle School Mathematics Contest of New Jersey

Thursday, February 15, 2024

No Calculator is allowed - 60 minutes

1. It requires 5 tablespoons of flour to make 15 gulab jamun. Given that there are 16 tablespoons in a cup, how many cups of flour are required to make 200 gulab jamun? Express your answer as a mixed number.
2. The set of integers $\{1, 3, 9, 11, x\}$ has the same mean and median. What is the sum of the possible values of x ?
3. Archie surveyed all of the students at Riverdale Middle School to determine what eye color is most common. On the survey, all students answered one question asking them to choose their eye color between blue, brown, and green eyes (with no other choices). Unfortunately, he lost part of his data, and only has the incomplete chart shown. How many 7th graders with brown eyes are there at Riverdale Middle School?

	6th	7th	8th	Total
Blue	38	?	28	97
Brown	?	?	?	339
Green	20	?	15	59
Total	157	176	162	495

4. Alexi opens his favorite mathematics puzzle book and notes that the product of the page numbers facing him is 1,332. Find the sum of these two page numbers. [Note: All pages are numbered consecutively.]

5. What is the ratio of the least common multiple of 180 and 594 to the greatest common factor of 180 and 594?
6. Sandra makes three donuts in 12 minutes. Alex makes four of the same donuts in 9 minutes. If they work together for 288 minutes, how many donuts will they make?
7. A solution containing only water and alcohol has a volume of 120 mL, and 16 mL of the solution is water. What is the minimum amount of pure water that must be added to produce a solution that is at least 20 percent water by volume?
8. The area of a square is 324 cm^2 . A rectangle has the same perimeter as the square. The width of the rectangle is half its length. What is the area of the rectangle?
9. There are two real numbers that are twice as far from 8 on the number line as they are from 20. What is the sum of these two numbers?
10. Lila's yard is filled with daisies and buttercups. The buttercups have five petals each, and the daisies have 34 petals each. There are three times as many buttercups as daisies. If Lila counts 1078 petals on the flowers in her yard, how many buttercups are there?