Orange County Math Circle

All-Girls Math Tournament

3rd-4th Target Round

1. How many edges does a rectangular prism have?

2. Jeff the sea lion is shaped awfully like a triangle. In fact, he is a triangle. Jeff is four feet wide and eight feet tall! What is half of his area?

3. The perimeter of a regular pentagon is equivalent to the perimeter of an equilateral triangle. If the side length of the pentagon is 6, what is the side length of the triangle?

4. Bessie has 7 friends who are either cows or chickens. In total, her friends have 22 legs. How many of Bessie's friends are cows?

5. At Karishma's Restaurant, a meal consists of one main dish, one side dish, and one drink. There are 10 choices for a main dish, 5 choices for an appetizer, and 9 choices for a drink. If Cathy is allergic to 5 of the main dishes and 2 of the appetizers, how many choices does she have for a meal?

6. Jan invited her friends to her house for a party. At 9 PM, half of the people leave. At 10 PM, one-third of the remaining people leave. Finally, at 11 PM, three-fourths of the remaining people leave, leaving only Jan. How many people, including Jan, were at the party?

7. At a certain store, 5 books and 1 pencil cost twice as much as 2 books and 2 pencils. 1 pencil usually costs 1 dollar. On a special savings day, 4 pencils are given for every purchase of a book. If you need at least 4 books and 30 pencils, what is the least amount of money you can spend?

8. How many different rectangles with integer side lengths are there with area 100? Two rectangles are considered the same if one can be rotated to get the other one.