

Math Kangaroo 2009 Sample Questions - Levels 7 & 8

1. Which of these numbers is the greatest?

- A) 2009 B) $2 + 0 + 0 + 9$ C) $200 - 9$ D) $200 \cdot 9$ E) $200 + 9$

2. Four boys and four girls attended Adam's party. The boys danced only with the girls and the girls danced only with the boys. Afterward, when asked the question, "With how many different people did you dance?" the four boys answered: 3, 1, 2, 2, while three of the girls answered: 2, 2, 2. With how many boys did the fourth girl dance?

- A) 0 B) 1 C) 2 D) 3 E) 4

11. For how many positive integers is the number of digits in the base ten representation of their square the same as that of their cube?

- A) 0 B) 3 C) 4 D) 9 E) Infinitely many.

12. What is the minimum number of dots that need to be removed from the given figure so that no three of the remaining dots are collinear?

- A) 3 B) 4 C) 2 D) 7 E) 1

21. An island is inhabited by two types of people: truth-tellers and liars. The truth-tellers always speak the truth and the liars always lie. 25 of the island's inhabitants stood in a line. Each of them with the exception of the first person said: The person directly in front of me is a liar, while the person standing first in the line said: Everyone standing behind me is a liar. How many liars stood in the line?

- A) 24 B) 13 C) 12 D) 0 E) Impossible to determine.

22. How many ten digit numbers can be constructed using the numbers 1, 2, and 3 so that any two consecutive digits differ by exactly 1?

- A) 16 B) 32 C) 64 D) 80 E) 100