



**Math Kangaroo USA**

*since 1998*

*International Competition in Mathematics*

## **A FUN MATH COMPETITION FOR STUDENTS IN GRADES 1-12**

***Thursday, March 21, 2024***

***5:30-7:30 PM***

***at California State University, Fresno***

Free practice sessions for Math Kangaroo are offered by Fresno State faculty and students on Saturdays 2/10/24, 2/24/24, and 3/9/24.

Learn more and register at <http://www.fresnomathcircle.org/competitions.html>.

**Registration deadline: December 15, 2023**

**Late registration deadline: December 31, 2023**

### *Sample problems*

***Grades 1-2:*** Monika is 2 years old and Karl is 4. How old will Monika be when Karl is 11?

- A) 6      B) 7      C) 8      D) 9      E) 10

***Grades 3-4:*** Matthew and Clara live in a skyscraper. Clara lives 12 floors above Matthew. One day Matthew went to visit Clara, and he took the stairs up from his apartment to Clara's apartment. Half way up he was on the 8th floor. On what floor does Clara live?

- A) 12      B) 14      C) 16      D) 20      E) 24

***Grades 5-6:*** Adam divided a certain secret number by 7. Then, he added 7 to the result and multiplied the number he obtained in this way by 7. For the final result he got the number 777. What was Adam's secret number?

- A) 770      B) 111      C) 722      D) 567      E) 728

***Grades 7-8:*** The smallest two-digit number that is not the sum of three different one-digit numbers is

- A) 10      B) 15      C) 23      D) 25      E) 28

***Grades 9-10:*** Two of the altitudes of a triangle are 10 cm and 11 cm. Which of the following cannot be the length of the third altitude?

- A) 5 cm      B) 6 cm      C) 7 cm      D) 10 cm      E) 100 cm

***Grades 11-12:*** Two right cylinders  $A$  and  $B$  have the same volume. The radius of the base of  $B$  is 10% larger than that of  $A$ . How much larger is the height of  $A$  than that of  $B$ ?

- A) 5%      B) 10%      C) 11%      D) 20%      E) 21%

***See more sample problems at <http://www.mathkangaroo.org>.***

***Questions? E-mail Dr. Maria Nogin at [mnogin@csufresno.edu](mailto:mnogin@csufresno.edu).***