

Math Kangaroo Homework #7

Since the Math Kangaroo is coming up in March, we will be solving Math Kangaroo problems for homework. Each week, I will give two Math Kangaroo problems that have showed up previously on real exams. Please solve each problem and provide **complete solutions** (this means showing your work, writing a short explanation for each step, and putting a box around your final answer). **These problems will be collected at the beginning of each class.**

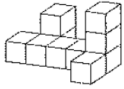
Math Kangaroo 2009 #24

How many different three-digit numbers can we make that have three different digits using the digits 1, 2, and 3?

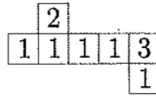
More on the back!

Math Kangaroo 2011 #24

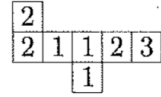
24. Paul and Jon were building using identical cube blocks. Paul made the building shown in Picture 1. Picture 2 shows Paul's building as seen from above. Picture 3 shows Jon's building as seen from above. (Note: The numbers in each square indicate how many blocks are placed one on top of another in that place.) Which of the answers shows Jon's building?



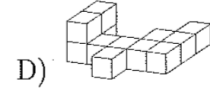
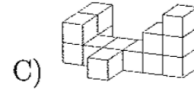
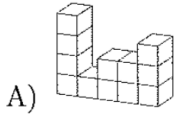
Picture 1.



Picture 2.



Picture 3.



Remember to explain your answer!