COUNTING IN DIFFERENT BASES

CROSSROADS ACADEMY
AMC PREPARATION

1. Conversion Problems

(1) Write the number 273 in base 12.

(2) Write the number $(123)_6$ in base 10.

(3) Write the number $(444)_5$ in base 18.

(4) What is $(10000)_2 - (1000)_2$ in base 4?

(5) How many 2 digit numbers are the in base 7?

(6) What is the base 3 representation of the biggest 3 digit base 11 number?

(7) How many digits in binary (base 2) does it take to write the 25th prime number?

(8) How many three digit base 5 numbers are five digit base 3 numbers?

(9) For how many bases does the number 2017 end in the digit 7?

(10) What is the probability that a random two digit base 10 integer is both a two digit base 8 integer and a two digit base 12 integer?