



Math Olympiad and Problem Solving Programs
E210 - Introductory Math Competitions
Problem Set 7.1 - Remainders

Name:

Date:

1.
2.
3.
4.
5.
6. The unit digit of the $1989 \times 1990 \times 1991$ portion is easy. Since there is a number that ends in 0 in the multiplication, the units digit of the product will be 0. So now we just have to find the unit digit of 1992^3 . We know that $2^1 = 2$, and $2^2 = 4$, and $2^3 = 8$, so the units digit of 1992^3 is 8. So the unit digit of the whole expression is $0 + 8 =$
7.
8. Find the pattern of numbers that are 2 more than a multiple of 7: $7+2, 14+2, 21+2, \dots, 98+2 = 9, 16, 23, \dots, 100$. Eliminate the pattern to be only two digit numbers: $16, 23, 30, \dots, 103$. Now count the numbers in the list.
9.
10.