Solution to Math Problem of the Month for May

843. If a remainder of 3 occurs when the number is divided by 8, 7, 6, 5, and 4, then it will be 3 more than a multiple of each. Since we want the smallest number, we are looking for the least common multiple of these five numbers. The least common multiple of 8, 7, 6, 5, and 4 is the product $2^3 \cdot 7 \cdot 3 \cdot 5 = 840$. In order to have a remainder of 3, we need $840 + 3 = 843$.