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# Math 218: Elementary Number Theory

## INCLUSION-EXCLUSION PROBLEMS

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1. Find the number of integers between 1 and 1000, inclusive, that are not divisible by 5, 6, and 8.
2. How many permutations of the letters  $M, A, T, H, I, S, F, U, N$  are such that none of the words "MATH", "IS", and "FUN" occur as consecutive letters?
3. How many integers between 0 and 99,999 inclusive have among their digits each of 2, 5, and 8?