MTH 4320 Homework 1

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1 Problem 1

Solution. We have a triple nested loop and for the outermost loop we run $n-1$ operations then we run $n-1$ operations in the inner loop for every operation in the outer loop and so on. The running time is $(n-1)(n-1)(n-1) = O(n^3)$. ■

2 Problem 2

Solution. We have $n-2$ operations from the outer loop where n is the input number *num*. Then we call the *is_prime* function twice for every operation and the function runs at most $n-2$ operations every time. The running time is $2(n-2)(n-2) = O(n^2)$. ■

3 Problem 3

Solution. ■

4 Problem 4

Solution. ■