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1.  $\lim_{n \rightarrow \infty} \frac{2n^2 - 3n}{C * n^2} = \lim_{n \rightarrow \infty} \frac{2n^2}{C * n^2} - \lim_{n \rightarrow \infty} \frac{3n}{C * n^2} = \lim_{n \rightarrow \infty} \frac{2}{C} - \lim_{n \rightarrow \infty} \frac{3}{C * n} = \frac{2}{C} + 0 = \frac{2}{C}$   
(Def)
2. This algorithm can be interpreted as an algorithm of writing down the number in binary number system. The step of the inner “while” writes 0 to the current digit and moves to the next digit. The subtraction of 1 writes one to the current digit and moves to the next digit. The runtime of Exponentiation is thus the number of digits in binary representation of the number, which has length of  $\lceil \log n \rceil$ . Answer:  $O(\log n)$