

a) $T(N) = 2N^2 - 4N + 10$ $O(N) = \boxed{O(N^2)}$
 Highest order is N^2

b) $T(N) = \sqrt{3N^3 + 11N} = 3N^{3/2}$ $\boxed{O(N) = O(N^{3/2})}$

c) $T(N) = \frac{N^2 \log N}{3N+1} = \frac{N^2}{3N+1} + \frac{\log N}{3N+1}$

With partial fractions this
 resolves to $\approx CN + \frac{1}{N}$
 so N ↙

Presumably this second part evaluates to
 $\frac{1}{N} \log n$, approximately resulting in $O(N)$ being
 similar to $\boxed{O(\frac{1}{N} \log n)}$