# PS08-01

February 22, 2018

$T(n) := \{A : \exists \text{ a TM } M s.t. L(M) = A \ \& \ M \text{ runs in } O(n) \text{ time.}\}$

*Proof.* There are two aspects to this proof. Part one was proven in class. We know based on class content that any Regular language can be represented decidably by a Turing Machine.
Next, since a DFA only makes one transition per input character its runtime is solely dependent on the length of the input $x$(with length $n$), and linearly so. □