Exam 2

	Whole Class	Attend at least one of 2 times we take attendance
Mean	39	45
Std Dev	18	

Given a graph $G=(V,E)$

V is a set of vertices/nodes

$E \subseteq V \times V$ a set of edges (p,q) for $p \in V$ $q \in V$

a clique of size k in G is a set of k vertices $C \subseteq V$ s.t. every edge inside C is present, i.e. $C \times C \subseteq E$ of G?

Given a graph G and a size k, is there a size k clique in G?

k-Clique $= \{ \text{"}G,k\text{"} \mid G$ contains a size k clique$\}$

- no better method known than "try all k-tuples of vertices" (n^k tuples)

CLIQUE-EVAL $= \{ \text{"}G,k,C\text{"} \mid C$ is a size k clique in $G\} \in P$ (fast polynomial)

Observation: "Yes" and "No" are asymmetric here.

I can convince you that "G, k" $\in$ k-Clique by showing you a size k clique $C \subseteq V$ (and you check CLIQUE_EVAL)

But there is no clear way to show you "G, k" $\notin$ k-Clique without exponential effort (search all k-tuples)

Likewise I can certify that "φ" $\in$ ~~FORMULA~~_SAT by showing truth assignment ρ s.t. $\varphi, \rho \in$ FORMULA_EVAL

scalable check i.e. $\in P$