NP-complete

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Entry type	Definition
Classification	msc 68Q15
Synonym	NP complete
Synonym	NP hard
Defines	NP-hard

A problem $\pi \in \mathcal{NP}$ is $\mathcal{NP}$ if for any $\pi' \in \mathcal{NP}$ there is a Cook reduction of π' to π. Hence if $\pi \in \mathcal{P}$ then every $\mathcal{NP}$ problem would be in $\mathcal{P}$. A slightly stronger definition requires a Karp reduction or Karp reduction of corresponding decision problems as appropriate.

A search problem R is $\mathcal{NP}$ *hard* if for any $R' \in \mathcal{NP}$ there is a Levin reduction of R' to R.