

Cpts 350 hwo.

Solutions (Sketch)

1. Input: x . Output: yes/no on the question.
2. It's alg, since k in C as an int-var, has a bounded range. Program crashes once k is out of the range, if $i=0$. k takes 1 memory word.
3. It's not alg, since it runs forever, when say, $i=0$. k takes inf. memory.
4. $2^6 = 64$ and hence student takes at least 6 bits.
5. P is not an alg, otherwise halting problem (whether Q runs forever) for C -programs is decidable which is not correct.