

A Very Easy Problem! (Challenge Mode)

This is challenge version of [A Very Easy Problem!](#). Given integer i , Your task is to convert integer i into <http://www.spoj.com/problems/EASYPROB/> format.

Score is the length of your source.

Input

There are multiple test cases, each line contain an integer i ($0 < i < 2^{64}$). Process input until EOF.

Output

For each case, output the converted number in separate line.

Example

Input:

137

1315

Output:

$137=2(2(2)+2+2(0))+2(2+2(0))+2(0)$

$1315=2(2(2+2(0))+2)+2(2(2+2(0)))+2(2(2)+2(0))+2+2(0)$

See also: [Another problem added by Tjandra Satria Gunawan](#)