#include<iostream>

using namespace std;

int roman\_to\_number( string s )

{

int output = 0;

for( int i = 0 ; i < s.length() ; i++)

{

switch( s[i] )

{

case 'I':

output++;

break;

case 'V':

output += 5;

if( s[i-1] == 'I' )

output -= 2;

break;

case 'X':

output += 10;

if( s[i-1] == 'I' )

output -= 2;

break;

case 'L':

output += 50;

if( s[i-1] == 'X' )

output -= 20;

break;

case 'C':

output += 100;

if( s[i-1] == 'X' )

output -= 20;

break;

case 'D':

output += 500;

if( s[i-1] == 'C' )

output -= 200;

break;

case 'M':

output += 1000;

if( s[i-1] == 'C' )

output -= 200;

break;

}

}

return output;

}

string number\_to\_roman( int i )

{

string output = "";

if( i == 0 )

return (output = "ZERO");

int temp;

while( i > 0 )

{

if( i >= 1000 )

{

i -= 1000;

output += "M";

}

else if( i >= 900 )

{

i -= 900;

output += "CM";

}

else if( i >= 500 )

{

i -= 500;

output += "D";

}

else if( i >= 400 )

{

i -= 400;

output += "CD";

}

else if( i >= 100 )

{

i -= 100;

output += "C";

}

else if( i >= 90 )

{

i -= 90;

output += "XC";

}

else if( i >= 50 )

{

i -= 50;

output += "L";

}

else if( i >= 40 )

{

i -= 40;

output += "XL";

}

else if( i >= 10 )

{

i -= 10;

output += "X";

}

else if( i >= 9 )

{

i -= 9;

output += "IX";

}

else if( i >= 5 )

{

i -= 5;

output += "V";

}

else if( i >= 4 )

{

i -= 4;

output += "IV";

}

else

{

i -= 1;

output += "I";

}

}

return output;

}

int main()

{

string num1, num2;

while( cin >> num1 )

{

if( num1 == "#" )

break;

cin >> num2;

cout << number\_to\_roman( abs( roman\_to\_number( num1 ) - roman\_to\_number( num2 ) ) ) << endl;

}

return 0;

}