#include<iostream>

#include<vector>

#include<string>

#include<algorithm>

#include<stack>

using namespace std;

int precedence(char ch)

{

switch(ch)

{

case '+':

case '-':

return 1;

case '/':

case '\*':

return 2;

case '^':

return 3;

default:

return -1;

}

}

int main()

{

int t;

cin>>t;

while(t--)

{

string s;

cin>>s;

int i;

vector<char> res;

stack<char>stk;

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

{

if(s[i] =='(')

stk.push(s[i]);

else if(isalpha(s[i]))

{

res.push\_back(s[i]);

}

else if(s[i] ==')')

{

while(!stk.empty() && stk.top() != '(' )

{

res.push\_back(stk.top());

stk.pop();

}

if(!stk.empty() && stk.top() == '(')

stk.pop();

}

else

{

{

while(!stk.empty() && (precedence(s[i]) <= precedence(stk.top())))

{

res.push\_back(stk.top());

stk.pop();

}

stk.push(s[i]);

}

}

}

while(!stk.empty())

{

res.push\_back(stk.top());

stk.pop();

}

for(i=0;i<res.size();i++)

{

cout<<res[i];

}

cout<<endl;

}

}