```python
import re
def negate(term):
    return f'~{term}' if term[0] != '~' else term[1]

def reverse(clause):
    if len(clause) > 2:
        t = split_terms(clause)
        return f'{t[1]}v{t[0]}'
    return ''
def split_terms(rule):
    exp = '(~*[PQRS])'
    terms = re.findall(exp, rule)
    return terms
def contradiction(query, clause):
    contradictions = [ f'{query}v{negate(query)}', f'{negate(query)}v{query}']
    return clause in contradictions or reverse(clause) in contradictions
def resolve(kb, query):
    temp = kb.copy()
    temp += [negate(query)]
    steps = dict()
    for rule in temp:
        steps[rule] = 'Given.'
    steps[negate(query)] = 'Negated conclusion.'
    i = 0
    while i < len(temp):
        n = len(temp)
        j = (i + 1) % n
        clauses = []
        while j != i:
            terms1 = split_terms(temp[i])
            terms2 = split_terms(temp[j])
            for c in terms1:
                if negate(c) in terms2:
                    t1 = [t for t in terms1 if t != c]
                    t2 = [t for t in terms2 if t != negate(c)]
                    gen = t1 + t2
                    if len(gen) == 2:
                        if gen[0] != negate(gen[1]):
                            clauses += [f'{gen[0]}v{gen[1]}']
                        else:
                            if contradiction(query,f'{gen[0]}v{gen[1]}'):
                                temp.append(f'{gen[0]}v{gen[1]}')
                                steps[''] = f"Resolved {temp[i]} and {temp[j]} to {temp[-1]}, which is in turn nu
                                \nA contradiction is found when {negate(query)} is assumed as true. Hence, {query
                                return steps
                    elif len(gen) == 1:
                        clauses += [f'{gen[0]}']
                    else:
                        if contradiction(query,f'{terms1[0]}v{terms2[0]}'):
                            temp.append(f'{terms1[0]}v{terms2[0]}')
                            steps[''] = f"Resolved {temp[i]} and {temp[j]} to {temp[-1]}, which is in turn null.
                            \nA contradiction is found when {negate(query)} is assumed as true. Hence, {query} is
                            return steps
            for clause in clauses:
                if clause not in temp and clause != reverse(clause) and reverse(clause) not in temp:
                    temp.append(clause)
                    steps[clause] = f'Resolved from {temp[i]} and {temp[j]}.'
            j = (j + 1) % n
        i += 1
    return steps
def resolution(kb, query):
    kb = kb.split(' ')
    steps = resolve(kb, query)
    print('\nStep\t|Clause\t|Derivation\t')
    print('-' * 30)
    i = 1
    for step in steps:
        print(f' {i}.\t| {step}\t| {steps[step]}\t')
        i += 1
def main():
    print("Enter the kb:")
    kb = input()
    print("Enter the query:")
    query = input()
    resolution(kb,query)
#test 1
#(P^Q)<=>R : (Rv~P)v(Rv~Q)^(~RvP)^(~RvQ)
main()
#test 2
#(P=>Q)=>Q, (P=>P)=>R, (R=>S)=>~(S=>Q)
main()
```

Terminal

```
Enter the kb:
Rv~p Rv~Q ~RvP ~RvQ
Enter the query:
r

Step|Clause |Derivation
-------------------------------
 1.| Rv~p | Given.
 2.| Rv~Q | Given.
 3.| ~RvP | Given.
 4.| ~RvQ | Given.
 5.| ~r| Negated conclusion.
 6.| P| Resolved from Rv~p and ~RvP.
 7.| Q| Resolved from Rv~p and ~RvQ.
 8.| ~QvP | Resolved from Rv~Q and ~RvP.
 9.| R| Resolved from Rv~Q and Q.
```