

1. Write predicates One converts centigrade temperatures to Fahrenheit, the other checks if a temperature is below freezing.

Program:

Production rules:

Arithmetic:

c_to_f is $c * 9 / 5 + 32$

freezing $f \leq 32$

Rules:

$c_to_f(C,F) :-$

F is $C * 9 / 5 + 32$.

freezing(F) :-

$F \leq 32$.

Output:

Queries:

?- $c_to_f(100,X)$.

$X = 212$

Yes

?- freezing(15)

.Yes

?- freezing(45).

No

2. WAP to implement factorial, fibonacci of a given number.

Program:

Factorial:

factorial(0,1).

factorial(N,F) :-

$N > 0$,

$N1$ is $N - 1$,

factorial($N1,F1$),

F is $N * F1$.

Output:

Goal:

?- factorial(4,X).

$X = 24$

Fibonacci:

fib(0, 0).

fib(X, Y) :- $X > 0$, fib($X, Y, _$).

fib(1, 1, 0).

fib($X, Y1, Y2$) :-

$X > 1$,

$X1$ is $X - 1$,

fib($X1, Y2, Y3$),

$Y1$ is $Y2 + Y3$.

Output:

Goal:
?-fib(10,X).
X=55

3.

PROGRAM 1 : Program to add two numbers.

predicates

add

clauses

add:-write("input first number"),
readint(X),
write("input second number"),
readint(Y),
Z=X+Y,write("output=",Z).

Output:-



```
Dialog
Goal: add
input first number4
input second number7
output=11Yes
Goal: _
```

4.

PROGRAM 4 : Program of fun to show concept of cut operator .

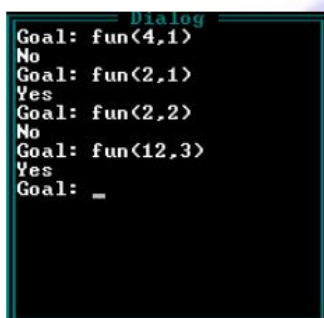
predicates

fun(integer,integer)

clauses

fun(Y,1):-Y<3,!.
fun(Y,2):-Y>3,Y<=10,!.
fun(Y,3):-Y>10,!.

Output:-



```
Dialog
Goal: fun(4,1)
No
Goal: fun(2,1)
Yes
Goal: fun(2,2)
No
Goal: fun(12,3)
Yes
Goal: _
```

5.

PROGRAM 5 : Program to count number of elements in a list .

domains

x=integer
list=integer*

predicates

count(list,x)

clauses

count([],0).
count([_|T],N):-count(T,N1),N=N1+1.

Output:-

```
Goal: count([],X)
X=0
1 Solution
Goal: count([1,2,3,4,5,6],X)
X=6
1 Solution
Goal: _
```

6.

PROGRAM 6 : Program to reverse the list .

domains

x=integer
list=integer*

predicates

append(x,list,list)
rev(list,list)

clauses

append(X,[],[X]).
append(X,[H|T],[H|T1]):-append(X,T,T1).
rev([],[]).
rev([H|T],rev):-rev(T,L),append(H,L,rev).

Output:-

```
Goal: append(2,[3,4,5],X)
X=[3,4,5,2]
1 Solution
Goal: rev([1,2,3,4],X)
X=[4,3,2,1]
1 Solution
Goal:
```

