```
/* Quadratic equation. */

discriminant(A, B, C, D):-
    D is B*B - 4*A*C.
:- arithmetic_function(discriminant/3).

quadeq(A, C, B):-
    A == 0,
    X is -C / B,
    write('Equation is linear and has a single root:'), nl,
    write(X), nl.
quadeq(A, B, C):-
    D is discriminant(A, B, C),
    D > 0,
    X1 is (-B + sqrt(D))/(2*A),
    X2 is (-B - sqrt(D))/(2*A),
    write('Equation has two roots:'), nl,
    write(X1), nl,
    write(X2), nl.
quadeq(A, B, C):-
    D is discriminant(A, B, C),
    D == 0,
    X is -B/(2*A),
    write('Equation has one root:'), nl,
    write(X), nl.
quadeq(A, B, C):-
    D is discriminant(A, B, C),
    D < 0,
    write('Equation has no roots.'), nl.

:- quadeq(1, 6, 9).
:- quadeq(0, 4, 4).
:- quadeq(1, 2, 3).
:- quadeq(1, 0, -100).

/*
?- ['.//quadratic.prolog'].
Equation has one root:
-3
Equation is linear and has a single root:
-1
Equation has no roots.
Equation has two roots:
10.0
-10.0
% .//quadratic.prolog compiled 0.00 sec, 2,008 bytes
true.
*/
```