

```

1: unit unMain;
2:
3: {$mode objfpc}{$H+}
4:
5: interface
6:
7: uses
8:   Classes, SysUtils, FileUtil, Forms, Controls, Graphics, Dialogs, Spin,
9:   StdCtrls;
10:
11: type
12:
13:   { TfrmMain }
14:
15:   TfrmMain = class(TForm)
16:     btnGo: TButton;
17:     spA: TFloatSpinEdit;
18:     spB: TFloatSpinEdit;
19:     spC: TFloatSpinEdit;
20:     labRoot1: TLabel;
21:     labRoot2: TLabel;
22:     procedure btnGoClick(Sender: TObject);
23:   private
24:
25:     public
26:
27:   end;
28:
29: var
30:   frmMain: TfrmMain;
31:
32: implementation
33:
34: {$R *.lfm}
35:
36: { TfrmMain }
37:
38: procedure TfrmMain.btnGoClick(Sender: TObject);
39: var a,b,c      : real; //equation coefficients
40:     discriminant, //interim calc
41:     root1, root2 : real; //equation solutions
42: begin
43:   //process quadratic solution
44:   //get coefficients
45:   a := spA.value;
46:   b := spB.value;
47:   c := spC.value;
48:
49:   //check TYPE of solution
50:   discriminant := b*b - 4*a*c;
51:
52:   if (discriminant < 0)
53:     then begin
54:       //NO real roots
55:       labRoot1.caption := 'NO SOLUTION';
56:       labRoot2.caption := ''
57:     end
58:     else if (discriminant = 0)

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```
59:     then begin
60:         //perfect square - ONE root
61:         labRoot1.caption := 'PERFECT SQUARE';
62:         root1 := (-b)/(2*a);
63:         labRoot2.caption := floattostr(root2)
64:
65:         end
66:     else begin
67:         //2 real roots
68:         root1 := (-b + sqrt(discriminant))/(2*a);
69:         root2 := (-b - sqrt(discriminant))/(2*a);
70:         labRoot1.caption := floattostr(root1);
71:         labRoot2.caption := floattostr(root2)
72:     end;
73:
74:
75:
76: end;
77:
78: end.
79:
```