In[1]:=
```
FindPeriod[α_] := If[NumberQ@α, "Rational",
  Module[{NextStep, Reduced, Get, start, Form, Δ, sΔ, A, B, a, k, i, t},
   Form = MinimalPolynomial[α, x] // CoefficientList[#, x] & // Reverse;
   If[Length[Form] ≠ 3, Return["Non-quadratic irrationality"],
    Get[{a_, b_, c_}] := {-b, 2 a, b^2 - 4 a * c};
    {A, B, Δ} = Get[Form]; sΔ = √Δ ; If[(A + sΔ)/B ≠ α, A = -A; B = -B];
    NextStep := Module[{},
      A = a_i B - A;
      B = (Δ - A^2)/B;
      a_(i+1) = (A + sΔ)/B // Floor; ++i];
    Reduced[A_, B_] := (0 < A < sΔ) && (sΔ - A < Abs[B] < sΔ + A);
    i = 0; a_0 = (A + sΔ)/B // Floor;
    While[! Reduced[A, B], NextStep];
    k = i; start = {A, Abs[B]}; NextStep;
    While [{A, Abs[B]} ≠ start, NextStep];
    Return[Table[a_t, {t, k, i - 1}]]]]]

(*_____________________________________________*)
(*** For tests generation one can use http://
 www.numbertheory.org/php/surd_construction.html ***)
(*_____________________________________________
 Program output examples: *)
```

In[2]:=
```
FindPeriod[(1 + √5)/2]
```
Out[2]= {1}

In[3]:=
```
FindPeriod[1/√7]
```
Out[3]= {1, 1, 1, 4}

In[4]:=
```
FindPeriod[(3 + √324)/76]
```
Out[4]= Rational

In[5]:=
```
FindPeriod[(108 + √12 997)/43]
```
Out[5]= {5, 6, 7}

In[6]:=
```
FindPeriod[(51 343 898 896 460 851 + √731 814 377 982)/15 803 704 970 475 533]
```
Out[6]= {8, 29, 2, 3, 4, 482}

In[7]:=
```
FindPeriod[1/4 (-17 - √313)]
```
Out[7]= {-9, 3, 17, 2, 1, 8, 5, 1, 3, 1, 1, 2, 2, 1, 1, 3, 1, 5}

In[8]:= **FindPeriod**$\left[\sqrt{2}+\sqrt{3}+\sqrt{5}\right]$

Out[8]= Non-quadratic irrationality

In[9]:= **FindPeriod**$\left[\left(-184+\sqrt{15}\right)/-43\right]$

Out[9]= {3, 2}

In[10]:= **FindPeriod**$\left[-\sqrt{6}+1\right]$

Out[10]= {4, 2}