```
> restart;
> p := (z,w) -> z-w^3;
```

$$p := (z, w) \rightarrow z - w^3 \tag{1}$$

```
> f := unapply(-I*exp(I*t)*diff(p(z,w),z)/diff(p(z,w),w),t,w);
```

$$f := (t, w) \rightarrow \frac{\frac{1}{3} I e^{I t}}{w^2} \tag{2}$$

```
> N:=100;
  u:=1.0;
  t:=0;
  h:= evalf(2*Pi/N):
  for j from 1 to N do
  u:= u + f(t,u)*h:
  t:=t+h:
  od:
```

$$N := 100$$
$$u := 1.0$$
$$t := 0 \tag{3}$$

```
> u;
```

$$-0.5004165391 + 0.8657660745 \, I \tag{4}$$

```
> evalf(exp(2*Pi*I/3));
```

$$-0.5000000000 + 0.8660254040 \, I \tag{5}$$

```
> with(Student[NumericalAnalysis]):
```

$[AbsoluteError, AdamsBashforth, AdamsBashforthMoulton, AdamsMoulton, AdaptiveQuadrature, AddPoint,$ (6)
    $ApproximateExactUpperBound, ApproximateValue, BackSubstitution, BasisFunctions, Bisection,$
    $CubicSpline, DataPoints, Distance, DividedDifferenceTable, Draw, Euler, EulerTutor, ExactValue,$
    $FalsePosition, FixedPointIteration, ForwardSubstitution, Function, InitialValueProblem,$
    $InitialValueProblemTutor, Interpolant, InterpolantRemainderTerm, IsConvergent, IsMatrixShape,$
    $IterativeApproximate, IterativeFormula, IterativeFormulaTutor, LeadingPrincipalSubmatrix, LinearSolve,$
    $LinearSystem, MatrixConvergence, MatrixDecomposition, MatrixDecompositionTutor, ModifiedNewton,$
    $NevilleTable, Newton, NumberOfSignificantDigits, PolynomialInterpolation, Quadrature,$
    $RateOfConvergence, RelativeError, RemainderTerm, Roots, RungeKutta, Secant, SpectralRadius,$
    $Steffensen, Taylor, TaylorPolynomial, UpperBoundOfRemainderTerm, VectorLimit]$

```
> t:='t';
  RungeKutta(diff(w(t), t) = f(t,w(t)), w(0) = 1.0, t = evalf(2*Pi),
  submethod = rk4);
```

$$t := t$$
$$-0.5000 + 0.8660 \, I \tag{7}$$