
Subject: Re: elliptic integrals

Posted by [Vince Hradil](#) on Wed, 26 Jan 2000 08:00:00 GMT

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I wrote this using Numerical Recipes in C. NB: I just wrote this last week, so I haven't tested it all out yet. Check NumRec for the reference to the algorithm.

```
FUNCTION cel, qqc, pp, aa, bb
;; from numerical recipes in C p. 201
```

```
ca = 0.0003D
pio2 = !DPI/2.0
```

```
IF ( qqc EQ 0 ) THEN BEGIN
  print, 'Bad qqc in cel'
  return, 0
ENDIF
```

```
qc = abs(qqc)
a = aa
b = bb
p = pp
e = qc
em = 1.0D
```

```
IF ( p GT 0.0 ) THEN BEGIN
  p = sqrt(p)
  b = b/p
ENDIF ELSE BEGIN
  f = qc*qc
  q = 1.0-f
  g = 1.0-p
  f = f-p
  q = q*(b-a*p)
  p = sqrt(f/g)
  a = (a-b)/g
  b = -q/(g*g*p)+a*p
ENDELSE
```

```
WHILE ( 1 ) DO BEGIN
  f = a
  a = a+(b/p)
  g = e/p
  b = b+(f*g)
  b = b+b
  p = g+p
  g = em
```

```

em = em+qc
IF ( abs(g-qc) LE g*ca ) THEN BEGIN
    rval = pio2*(b+a*em)/(em*(em+p))
    return, rval
ENDIF
qc = sqrt(e)
qc = qc+qc
e = qc*em
ENDWHILE

```

END

FUNCTION ellint1, k

```

kc = sqrt(1.0-double(k))

e1 = cel(kc, 1.0D, 1.0D, 1.0D)
return, e1

```

END

FUNCTION ellint2, k

```

kc = sqrt(1.0-double(k))

e2 = cel(kc, 1.0D, 1.0D, kc*kc)
return, e2

```

END

Tom Intrator wrote:

```

> do you have any thing that would compute elliptic integrals?
>
> I need the complete ones K,E but for arguments m>1 (terminology as per
> Abramowitz and Stegun) This requires computation of some incomplete ones
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>
> I am using IDL for this
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> thanks
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