

```
> with(qseries);
```

```
[aaproduct, changes, checkmult, checkprod, etamake, etaq, findcong, findhom, findhomcombo,
  findhomcombomodp, findhommodp, findlincombo, findlincombomodp, findmaxind,
  findnonhom, findnonhomcombo, findpoly, findprod, jac2prod, jac2series, jacprod,
  jacprodmake, lqdegree, lqdegree0, mprodmake, oldsift, packageversion, prodmake, qbin,
  qdegree, qetamake, qfactor, qs2jaccombo, quinprod, sift, theta, theta2, theta3, theta4, tripleprod, winquist,
  zqfactor]
```

(1)

```
> packageversion();
```

```
*****
```

```
*
* qseries package version 1.3
* Fri Aug 12 15:07:08 EDT 2016
* This version tested on MAPLE 2015
*
* Please report any problems to fgarvan@ufl.edu
* See
* http://qseries.org/fgarvan/qmaple/qmaple.html
* for documentation and help.
*
```

```
* Previous versions:
```

```
    1.3 - Aug 2016 (MAPLE 2015)
    1.2 - Dec 2012 (MAPLE 16)
    1.1 - Jul 2012 (MAPLE 13)
    1.0 - Jun 2009 (MAPLE 10)
    0.9 - Apr 2008 (MAPLE 10)
    0.8 - May 2005 (MAPLE 9)
    0.7 - Mar 2004
    0.6 - Nov 2002
    0.5 - May 2000
    0.4 - Jan 2000
    0.3 - Nov 1999
    0.2 - Dec 1998
    0.1 - Dec 1997
```

```
*****
```

```
> x:=add(q^(n*(n+1)/2),n=0..20);
```

```
x := q210 + q190 + q171 + q153 + q136 + q120 + q105 + q91 + q78 + q66 + q55 + q45 + q36 + q28
      + q21 + q15 + q10 + q6 + q3 + q + 1
```

(2)

```
> etamake(x,q,200);
```

$$\frac{\eta(2\tau)^2}{q^{1/8}\eta(\tau)} \quad (3)$$

```
> getamake(x,q,200);
```

$$\frac{E(q^2)^2}{E(q)} \quad (4)$$

```
> P:=series(1/etaq(q,1,5001),q,5001):
```

```
> findcong(P,5000);
```

```
[4, 5, 5]
```

```
[5, 7, 7]
```

```
[6, 11, 11]
```

```
[24, 25, 25]
```

```
[19, 49, 49]
```

```
[33, 49, 49]
```

```
[40, 49, 49]
```

```
[47, 49, 49]
```

```
{[4, 5, 5], [5, 7, 7], [6, 11, 11], [19, 49, 49], [24, 25, 25], [33, 49, 49], [40, 49, 49], [47, 49, 49]}
```

(5)