Fibonacci[1,000,000,000] contains 208,987,640 decimal digits

Source: http://sci.tech−archive.net/Archive/sci.math.symbolic/2004−08/0048.html

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"Ed Pegg Jr" <edpegg@gmail.com> wrote in comp.soft−sys.math.mathematica:
> *For finding the number of digits in any sufficently large Fibonacci*
> *number in base 10, let k = (ArcCsch[2])/Log[10]. The number of*
> *digits in Fibonacci[n] is Round[n k].*
>
> *k ~ 0.208987640249978733769272089237555416822459239918 21*
>
> *Fibonacci[10^9] has 10^9 k ~ 208987640 digits.*

Thank you for confirming this result. It means, that the number mentioned in
Sloane's sequence A068070
(number of digits of the 10^n_th Fibonacci number), like some other numbers
in this sequence,
are wrong.
N. Sloane get now a comment to A068070 with the corrected sequence
{0,2,21,209,2090,20899,208988,2089877,20898764,208987640,2089876402,20898764
0
25,208987640250,2089876402500,20898764024998,208987640249979,
2089876402499787,20898764024997873,208987640249978734,...}.

In addition, here is a fast way to find the n_th Tribonacci number:

```
rho=1/3*((19+3*Sqrt[33])^(1/3)+(19−3*Sqrt[33])^(1/3)+1);
triboappr[n_]:=N[(rho−1)/(4rho−6)*rho^(n−3),3000];
```

For getting the digits of the 10^n_th Tribonacci number, we could try a
constant k_2 = 0.264649...
(similar to the k above), or quick and dirty

```
Table[MantissaExponent[triboappr[10^i]][[2]],{i,1,7}]
```

and get

{2, 26, 264, 2646, 26464, 264649, 2646494,...}

Until now, this sequence was not in Sloane's database and is sent there.

Greetings from Hamburg,

Michael Taktikos

P.S. Because the last mail I sent to comp.soft−sys.mathematica somehow got lost, this mail will appear in sci.math.symbolic, too.