

Factorization method devised from Fermat method

Let us find factors of odd integer N ,
 $N=a*b$

- Let us divide N by 4
- If the remainder after division is 1

then $B = (N-1)/4$

- Where $B = x(x+1)-y^2$
- $b = 2x+1-2y$ and $a = 2x+1+2y$

- Example $N = 341$
- $341\%4 = 1$
- $B=(341-1)/4 = 85$
- $85 = 110-25$

We try to find x similarly as explained in
http://en.wikipedia.org/wiki/Fermat_factorization_method#Basic_method

- $a = 21+10 = 31$
- $b = 21-10 = 11$
- $N = 341 = 31*11$

- Let us divide N by 4
- If the remainder after division is 3

then $B = (N+1)/4$

- Where $B = x^2-y(y+1)$
- $b = 2x-2y-1$ and $a = 2x+2y+1$

- Example $N = 39$
- $39\%4 = 3$
- $B=(39+1)/4 = 10$
- $10 = 16-6$

We try to find x similarly as explained in
http://en.wikipedia.org/wiki/Fermat_factorization_method#Basic_method

- $a = 8+5 = 13$
- $b = 8-5 = 3$
- $N = 39 = 13*3$