Four Square

Submissions | Attempted by: 302 | Solved by: 126 | Partially Solved by: 113 |

Easy | Easy-Medium | Math | Number Theory

Problem | Editorial | Analytics | The Big Bang Challenge

This problem is based on **Jacobi's four-square theorem** which states that " The number of ways to represent n as the sum of four squares is eight times the sum of the divisors of n if n is odd and 24 times the sum of the odd divisors of n if n is even ."

$$r_4(n) = \begin{cases} 8 \sum_{m|n} m & \text{if } n \text{ is odd} \\ 24 \sum_{\substack{m|n \\ m \text{ odd}}} m & \text{if } n \text{ is even.} \end{cases}$$

Equivalently, it is eight times the sum of all its divisors which are not divisible by 4, i.e.

$$r_4(n) = 8 \sum_{m\,:\,4\nmid m \mid n} m.$$

IS THIS EDITORIAL HELPFUL?

Yes, it's helpful

No, it's not helpful

3 developer(s) found this editorial helpful.

Tester Solution by Ashish Khatkar

```
1. /*
2. ID: ashish1610
3. PROG: Four Squares
4. LANG: C++
5. */
6. #include<bits/stdc++.h>
7. using namespace std;
8. #define ll      long long int
```

```
int main()
{
        int t;
        scanf("%d",&t);
        while(t--)
        {
                ll n;
                scanf("%lld",&n);
                ll ans=0;
               for(ll i=1;i<=(ll)sqrt(n);++i)
               {
                       if(n%i==0)
                       {
                               if(i%4!=0)
                                       ans+=i;
                               if(i*i!=n)
                               {
                                       if((n/i)%4!=0)
                                               ans+=(n/i);
                               }
                       }
               }
                ans*=8;
                printf("%lld\n",ans);
        }
        return 0;
}
```

PROBLEMS SUGGESTED FOR YOU

Hack Sequence
Solved by 274

Fifty Shades Of Grey
Solved by 9

Jim's Selection
Solved by 764

more...

RECENT SUBMISSIONS

User	Result	Time	Lang
V.Vishwa...	✔	7.0307	C
V.Vishwa...	✔	18.1111	C
V.Vishwa...	✔	1.005	C
V.Vishwa...	✖	1.0051	C
Crystal ...	✔	6.1187	C++
Crystal ...	✔	18.1488	C++
Crystal ...	✔	18.1166	C++

View All

TRENDING NOTES

Number Theory - II
written by Tanmay Chaudhari

Matrix exponentiation
written by Mike Koltsov

Graph Theory - Part II
written by Pawel Kacprzak

Computational Geometry - I
written by Arjit Srivastava

Rendering Performance in Android - Overdraw
written by Vishnu Sosale

more ...

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Horlicks Hack 4 Fun

03 Sep 2015, 09:00 PM IST

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18 Sep 2015, 06:00 PM IST

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Code-Hack 3B

23 Sep 2015, 06:00 PM IST

Register

Code Monk (Number Theory II)

23 Sep 2015, 09:00 PM IST

Register

Hack The Talk

25 Sep 2015, 06:00 PM IST

Register

AppXtreme – an online hackathon

25 Sep 2015, 06:00 PM IST

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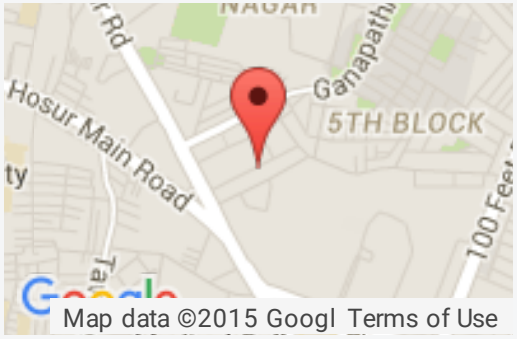

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