**Highest power of 2 that evenly divides a number**

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C#

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Write a function that takes a number and returns highest power of 2 that evenly divides the number.

For example:

Kata.Solution(123) => 1

Kata.Solution(192) => 64

Kata.Solution(132232) => 8

Assume that: number is an integer within the range [1..10^18].

<https://www.codewars.com/kata/highest-power-of-2-that-evenly-divides-a-number/csharp>

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace ConsoleApplication1

{

class Program

{

public static long largestPowerOf2(long n)

{

return (long)Math.Pow(2, Math.Floor(Math.Log(n) / Math.Log(2)));

}

public static long Solution(long n)

{

for (long power = largestPowerOf2(n); power >= 1; power /= 2)

{

if (n % power == 0) return power;

}

return 0;

}

public static long Solution(long n)

{

if (n % 2 != 0)

return 1;

long highest = 0;

long actual = 2;

do

{

if (n % actual == 0)

highest = actual;

actual \*= 2;

} while (actual <= n);

return highest;

}

public static long Solution(long n)

{

long res = 1;

for (; n % res == 0; res \*= 2) ;

return res / 2;

}

static void Main(string[] args)

{

//long n = 1000000000000000000;

//Console.WriteLine(largestPowerOf2(n));

//long n = 192;

long n = 64;

Console.WriteLine(Solution(n));

Console.ReadLine();

}

}

}