

# Method that calculates the Greatest Common Divisor (GCD) of two positive integer numbers.

```
/*
 * CVS identifier:
 *
 * $Id: MathUtil.java,v 1.15 2001/09/14 08:48:51 grosbois Exp $
 *
 * Class: MathUtil
 *
 * Description: Utility mathematical methods
 *
 *
 *
 * COPYRIGHT:
 *
 * This software module was originally developed by Raphaël
Grosbois and
 * Diego Santa Cruz (Swiss Federal Institute of Technology-
EPFL); Joel
 * Askelöf (Ericsson Radio Systems AB); and Bertrand Berthelot,
David
 * Bouchard, Félix Henry, Gerard Mozelle and Patrice Onno
(Canon Research
 * Centre France S.A) in the course of development of the
JPEG2000
 * standard as specified by ISO/IEC 15444 (JPEG 2000 Standard).
This
 * software module is an implementation of a part of the JPEG
2000
 * Standard. Swiss Federal Institute of Technology-EPFL,
```

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```

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* */
using System;
namespace CSJ2K.j2k.util
{

///

This class contains a collection of utility methods from
mathematical
/// operations. All methods are static.
///
///
public class MathUtil
{

///

Method that calculates the Greatest Common Divisor (GCD) of
two
/// positive integer numbers.
///
///
public static int gcd(int x1, int x2)
{
if (x1 < 0 || x2 < 0) { throw new
System.ArgumentException("Cannot compute the GCD " + "if one
integer is negative."); } int a, b, g, z; if (x1 > x2)
{
a = x1;
b = x2;
}
else
{
a = x2;
b = x1;
}

if (b == 0)

```

```
return 0;

g = b;

while (g != 0)
{
z = a % g;
a = g;
g = z;
}
return a;
}
```

```
///
```

Method that calculates the Greatest Common Divisor (GCD) of several

```
/// positive integer numbers.
```

```
///
```

```
///
```

```
/// Array containing the numbers.
```

```
///
```

```
/// public static int gcd(int[] x)
```

```
{
```

```
if (x.Length < 2) { throw new System.ApplicationException("Do not use this method if there are less than" + " two numbers."); } int tmp = gcd(x[x.Length - 1], x[x.Length - 2]);
```

```
for (int i = x.Length - 3; i >= 0; i--)
```

```
{
```

```
if (x[i] < 0) { throw new System.ArgumentException("Cannot compute the least " + "common multiple of " + "several numbers where " + "one, at least," + "is negative."); } tmp = gcd(tmp, x[i]); } return tmp; } } } [/csharp]
```