

# Text for Use in the "Disposition of Comments Document"

(Comment #30)

The generally accepted semantics of the CEILING function are to round up to a nominated multiple of significance. It is proposed to clarify this further in the DIS 29500 definition of the CEILING function.

In the original submission of DIS 29500 the behavior was defined correct on what to do when the input number was negative and the significance value was also negative. This was a legacy behavior designed to maintain compatibility with the existing corpus of legacy documents. The spec had an unnecessary limitation however that regardless of the sign of the significance input, the result was always rounded away from zero. The following changes will be made:

## 3.17.7.33 CEILING

### Syntax:

CEILING (  $x$  , *significance* )

**Description:** Computes a value that is  $x$  rounded-up, ~~away from zero~~, to the nearest multiple of *significance*. ~~Regardless of the sign of  $x$ , a value is rounded up when adjusted away from zero.~~

### Arguments:

Name	Type	Description
$x$	number	The value to be rounded
<i>significance</i>	number	The multiple to which $x$ is to be rounded.  <u>If <math>x</math> is negative, and <i>significance</i> is negative, then the value is rounded down (away from zero). If <math>x</math> is negative, and <i>significance</i> is positive, then the value is rounded up, towards zero.</u>  <u>If <math>x</math> is positive, and <i>significance</i> is negative, then the value is #NUM!</u>  <u>If <math>x</math> and/or <i>significance</i> is zero, then the result is zero.</u>

**Return Type and Value:** number – The rounded-up value of  $x$ .

1 ~~However, if  $x$  and *significance* have different signs, #NUM! is returned.~~

2 [Example:

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4 CEILING(2.5,1) rounds 2.5 up to the nearest multiple of 1; that is, to 3

5 CEILING(-2.5,2) rounds -2.5 up to the nearest multiple of 2; that is, to -2

6 CEILING(-2.5,-2) rounds -2.5 ~~up~~down to the nearest multiple of -2; that is, to -4

7 CEILING(1.5,0.1) rounds 1.5 up to the nearest multiple of 0.1; that is, to 1.5

8 CEILING(0.234,0.01) rounds 0.234 up to the nearest multiple of 0.01; that is, to 0.24

9 CEILING(-0.234,0.01) rounds -0.234 up to the nearest multiple of 0.01; that is, to 0.23

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11 *end example]*