

# Rounding

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# Rounding Rules

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## Roundings to Nearest

- Round to nearest, ties to even
- Round to nearest, ties away from zero

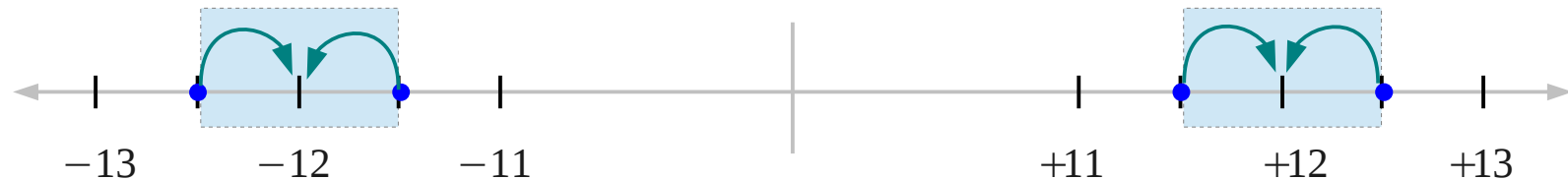
## Directed Roundings

- Round toward 0
- Round toward  $+\infty$
- Round toward  $-\infty$

# Roundings to Nearest

## Round to nearest, ties to even

- Rounded to the nearest value with an even (zero) lsb
- Default for binary floating-point
- Recommend default to decimal



## Round to nearest, ties away from zero

- Rounded to the nearest value above (for positive numbers)
- Rounded to the nearest value below (for negative numbers)
- An option for decimal floating point



# Directed Roundings

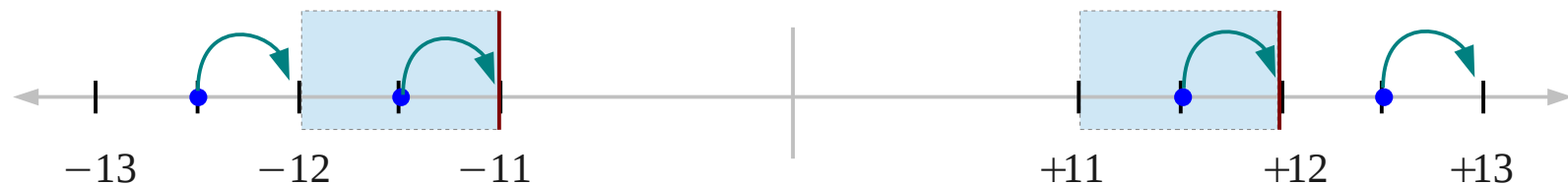
## Rounding toward 0

- truncation



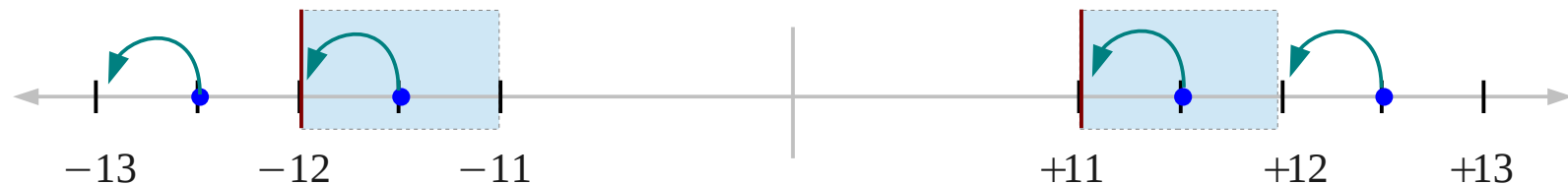
## Rounding toward $+\infty$

- Rounding up (Ceiling)



## Rounding toward $-\infty$

- Rounding down (Floor)



# Directed Roundings

## Rounding toward 0

- truncation

**1.100**

## Rounding toward $+\infty$

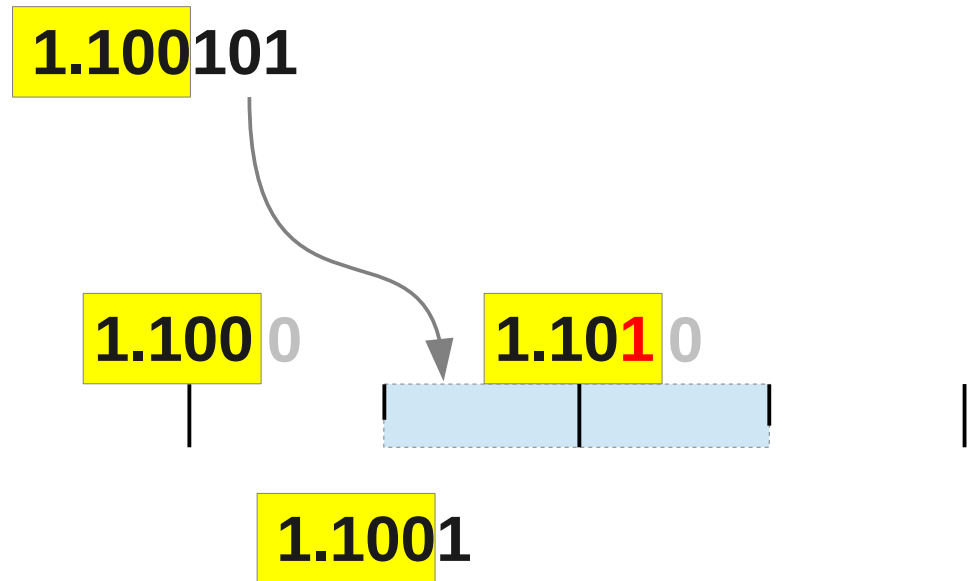
- Rounding up (Ceiling)

**1.101**

## Rounding toward $-\infty$

- Rounding down (Floor)

**1.100**



## Roundings to Nearest

**1.101**

## References

- [1] <http://en.wikipedia.org/>
- [2] <http://www.allaboutcircuits.com/>