

3. Rounding off of floating point numbers.

① The five rounding rules are.

Round to nearest, - Rounds to the nearest value, if the number is midway, it is rounded to nearest value with an even least significant digit.

$$\text{Ex: } +2.5 \Rightarrow 2.0 \quad 3.5 \Rightarrow 4.0$$

② Round to nearest, ties away from zero - Rounds to the nearest value; if the number falls midway it is rounded off to the nearest value above (for positive numbers) and nearest below value for negative numbers.

$$\begin{aligned} \text{Ex - } +2.5 &\Rightarrow 3.0 & +3.5 &\Rightarrow 4.0 \\ -3.5 &\Rightarrow -4.0 & -2.5 &\Rightarrow -3.0 \end{aligned}$$

Round towards '0': Round of the number such that the value is close to 0 on number line.

$$\text{Ex: } -3.5 \Rightarrow -3.0 \quad +2.5 \Rightarrow 2.0$$

Round off towards '+∞': Round of towards positive infinity.

$$\text{Ex - } -3.5 \Rightarrow -3.0 \quad , \quad +2.5 \Rightarrow 3.0$$

Round off towards '-∞': Round off towards negative infinity.
Example.

Round off towards ' $-\infty$ ' - Direct rounding off
towards negative infinity (flooring)

$$\text{Ex } -3.5 \Rightarrow -4.0 \quad 2.5 \Rightarrow 2.0.$$