Rounding Decimals

Rounding off is an arithmetic method used to locate an estimate of a particular number. Decimal numbers are rounded off to a designated decimal point to make them easier to grasp and handle, instead of providing a long series of decimal places.

Following are the Rules for Rounding Decimals:

- Round off the decimal number to the closest whole number.
- Rounding to the nearest tenths or, in other words, to one decimal place.
- Rounding to the nearest hundredths, which is the same as rounding to two decimal points.

Rounding Off Decimal Numbers to the Nearest Whole Number

On Rounding off Decimals to the nearest whole number, the tenth digit is tested if it is above or below 5. If the tenth is equal to or greater than 5, the number is rounded up, and if the tenth digit is less than 5, the number is rounded down. Rounding up a number where the tenth digit is higher than or equal to 5 is essentially applying 1 unit to the one-digit or the first digit to the left of the decimal point. You write the remaining numbers after you lower all the numbers to the right after the decimal point.

Rounding Off a Decimal Number to the Nearest Tenths

Rounding a number to the nearest tenths is the same as rounding a number to 1 decimal place. In this case, the digit is identified in the 100th place. If the digit in the 100th place is greater than or equal to 5, the 10th digit shall be increased by one unit. The rest of the numbers are dropped after the tenth digit. If the digit in the 100th place is equal to or less than 4, the digit in the 10th place shall remain unchanged. Likewise, the rest of the numbers after the tenth digit are dropped.

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Rounding Off a Number to the Nearest Hundredths

Rounding to the nearest hundredths is the same as rounding to two decimal places. To round off a number to two decimal places, look at the digit in a thousandth place. If the digit in the thousandths place is greater than or equal to 5, the hundredths digit shall be increased by one unit. And if the digit in the thousandths place is equal to or less than 4, the digit in the hundredths places will remain unchanged.

Let us understand with some examples:

Example 1: Round 542.33 to the nearest tenths.

Solution:

Step Number	Observation	Working Out
Step 1	542.33	
Step 2	We get 3 in the tenths column.	
Step 3	We get 3 in the hundredths place (right of 3)	
Step 4	We get 3 in Step 3.	Round-Down
Step 5	542.3	We keep 3 as it is, and remove all the digits from the right of the tenths column.

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Example 2: Ryan weighs 27.51 kg. What is his weight to the nearest kg?

Solution:

Step Number	Observation	Working Out
Step 1	27.51	
Step 2	We get 7 in the one's place.	
Step 3	We get 5 in the tenths place (right of 7)	
Step 4	We get 5 in Step 3.	Round-Up
Step 5	28	We add 1 to 7 and remove all the digits from the right of the ones place.

The weight to the nearest kg = 28 kg.