

Place Value and Rounding Whole Numbers

The Natural Numbers: $N = \{1, 2, 3, 4, 5, 6, \dots\}$

The Whole Numbers: $W = \{0, 1, 2, 3, 4, 5, 6, \dots\}$

Place Value for Whole Numbers

Hundred-Quintillions
Ten -Quintillions
Quintillions,
Hundred- Quadrillions
Ten- Quadrillions
Quadrillions,
Hundred- Trillions
Ten- Trillions
Trillions,
Hundred- Billions
Ten- Billions
Billions,
Hundred-Millions
Ten-Millions
Millions,
Hundred-Thousands
Ten-Thousands
Thousands,
Hundreds
Tens
Ones (or Units)

The Rules for Rounding Whole Numbers

1. Identify the place of the digit to be rounded.
2. Look at the digit to the right of that place.
 - If that digit is **5 or greater**, **add 1** to the digit to be rounded, and replace all the digits to the right with zeros.
 - If that digit is **less than 5**, **do not change** the digit to be rounded, and replace the all the digits to the right with zeros.

Examples

Round 4,562 to the nearest hundred.

Solution

The hundreds digit is 5.

The digit to the right is 6 (it is more than 5).

Add 1 to 5 and replace all the digits to the right with zeros.

$$4,562 \approx 4,600$$

Round 423,481 to the nearest ten-thousand.

Solution

The ten-thousands digit is 2.

The digit to the right is 3 (it is less than 5).

Do not change 2 and replace all the digits to the right with zeros.

$$423,481 \approx 420,000$$

Round 4,598 to the nearest ten.

Solution

The tens digit is 9.

The digit to the right is 8 (it is more than 5).

Add 1 to 9 and replace the digit to the right with zero.

($1 + 9 = 10$, therefore, you will carry 1 to the hundreds place)

$$4,598 \approx 4,600$$

Round 35,271 to the nearest thousand.

Solution

The thousand digit is 5.

The digit to the right is 2 (it is less than 5).

Do not change 5 and replace all the digits to the right with zeros.

$$35,271 \approx 35,000$$