

Rounding Whole Numbers and Decimals

To round a whole number:

1. Write the number to be rounded. Underline all the digits from the left through the place you are rounding to.
2. Mark the digit just to the right of the last underlined digit.
3. If the digit to the right of the last underlined digit is 5 or greater, increase the entire underlined number by 1 and replace all the digits to its right with zeros.
4. If the digit to the right of the last underlined digit is less than 5, replace it and all the digits to its right with zeros.

Example 1: Round 24,796 to the nearest thousand.

Underline the number through the thousands place and mark the digit next to the right: 24,796
Because the 7 is greater than 5, increase 24 by 1, making it 25. Then replace all digits to its right with zeros: 25,000
Thus, 24,796 rounded to the nearest thousand is 25,000.

Example 2: Round 1,253,465 to the nearest ten thousand.

We write the number and underline the digits through the ten-thousands place. We mark the next digit. 1,253,465
Because 3 is less than 5, we replace it and all the digits to the right with zeros: 1,250,000
Thus, 1,253,465 rounded to the nearest ten thousand is 1,250,000.

Example 3: Round 19546576 to the nearest million.

Grouped, 19546576 is 19,546,576. We underline through the millions place and mark the next digit. 19,546,576
Because the marked digit is 5, we increase 19 by 1 and replace all digits to the right with zeros: 20,000,000.
Thus 19,546,576 rounded to the nearest million is 20,000,000.

Practice Problems:

1. Round 1,435 to the nearest hundred.
2. Round 19,786 to the nearest thousand.
3. Round 4,563,929 to the nearest hundred thousand.
4. Round 42,736,325 to the nearest million.
5. Round 318 to the nearest ten.
6. Round 75,994,575 to the nearest ten thousand.

Answers:

1. 1400
2. 20,000
3. 4,600,000
4. 43,000,000
5. 320
6. 76,000,000

To round a decimal number to a decimal place:

1. Write the number, underlining the digits from the left through the place you are rounding to.
2. If the digit just to the right of the last underlined digit is 5 or greater, increase the underlined number by 1 disregarding the decimal point.
3. If the digit just to the right of the last underlined digit is less than 5, leave the underlined number as is and delete any digits to the right.

Example 4: Round 4.76873 to the nearest thousandth.

Underline the number through the thousandths place and look at the digit to the right of the last underlined digit: 4.76873
Since 7 is greater than 5, we increase to 4.76873 to 4.769 and drop the digits to the right, leaving 4.769 as our rounded number.

Example 5: Round 12.539995 to the nearest hundred-thousandth.

Underline the number through the hundred-thousandths place and look at the digit to the right of the last underlined digit:
12.539995

Since the number to the right is 5, we increase 12.539995 by 1 (disregarding the decimal point) to 12.54000 and drop all digits to the right of the hundred-thousandths place. So our rounded number is 12.54000. We keep the three zeros to indicate how this number was rounded.

Practice Problems:

1. Round 5.98491 to the nearest thousandth.
2. Round 75.6538 to the nearest hundredth.
3. Round 453.92819 to the nearest ten-thousandth.
4. Round 131.44995 to the nearest ten-thousandth.
5. Round 23.398389 to the hundred-thousandth.

Answers:

1. 5.985
2. 75.65
3. 453.9282
4. 131.4500
5. 23.39839