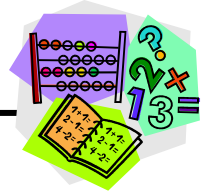


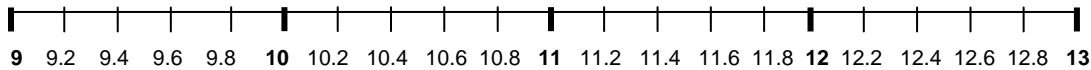
Rounding Decimal Numbers



Rounding decimal numbers is a good strategy to use when estimating amounts, such as the cost of items in a store.

Decimal numbers represent parts of whole numbers, similar to fractions.

In the number line below, the **bold** numbers are **whole numbers**. The other numbers are **decimal numbers** — they have a decimal point in them.



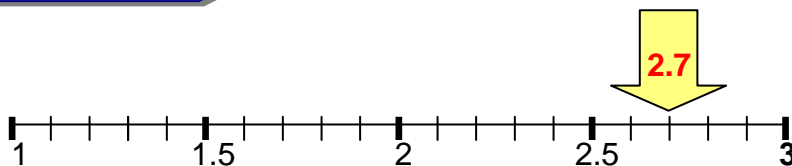
Think: Why is the number line broken into four equal parts between each whole number? Remember what you know about intervals. Notice how the decimals count up by 2s.

Decimal numbers can be rounded using number lines. Remember that you can think of this number line as a mountain. See [Rounding Whole Numbers](#) for an example.

Rounding to the Nearest Whole Number

Examples

A) Round **2.7** to the nearest whole number.



Locate the whole numbers 2 and 3 on the number line.

Locate 2.7.

2.7 is closer to the whole number 3 than to the whole number 2.

So, 2.7 rounded to the nearest whole number is **3**.

B) Round **7.4** and **7.9** to the nearest whole numbers.

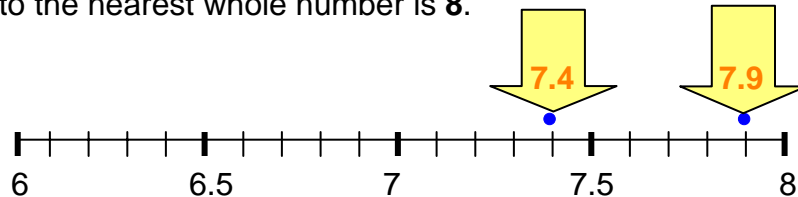
7.4 lies between 7 and 8.

7.4 is closer to the whole number 7.

7.9 is closer to the whole number 8.

So, 7.4 rounded to the nearest whole number is **7**, and

7.9 rounded to the nearest whole number is **8**.



When a number is halfway between two numbers, round up to the larger number.

C) Round **7.5** to the nearest whole number.

7.5 is exactly halfway between 7 and 8.

Therefore, 7.5 rounds to **8**.

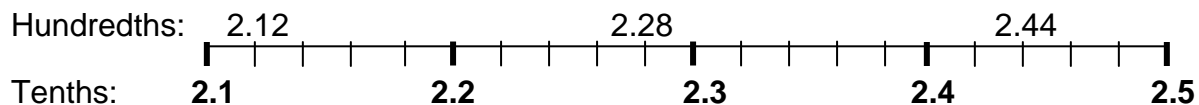
Rounding to the Nearest Tenth

To round to the nearest tenth using a number line, look at the tenth place value closest to the number you are rounding.

Example

Round 2.12, 2.28 and 2.44 to the nearest tenth.

The number line shows a calibration that increases by 0.02. The bold numbers show tenths, the numbers above are in hundredths.



2.12 is closest to **2.1** and rounds to 2.1.

2.28 is closest to **2.3** and rounds to 2.3.

2.44 is closest to **2.4** and rounds to 2.4.

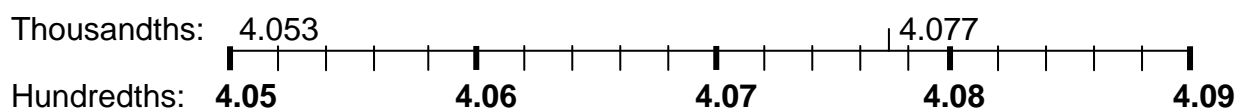
Rounding to the Nearest Hundredth

To round to the nearest hundredth using a number line, look at the hundredth place value closest to the number you are rounding.

Example

Round 4.053 and 4 to the nearest hundredths.

The bold numbers on this number line show numbers in the **hundredths** decimal place. The numbers above the line are in the thousandths.



4.053 lies between 4.05 and 4.06.

4.053 is closer to **4.05**, so it rounds to 4.05.

4.077 lies between 4.07 and 4.08.

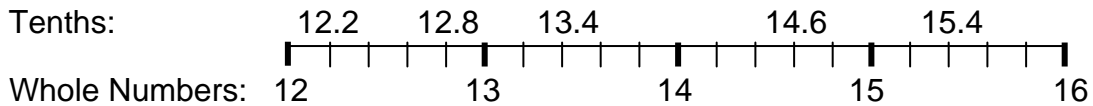
4.077 is closer to **4.08** so it rounds to 4.08.

Check this out! Another strategy to use when rounding can be found in [Hints for Rounding](#).



Practice: Rounding to Whole Numbers, Tenths and Hundredths

1. Refer to the number line below. Which **whole number** is each of the following decimal numbers closest to and therefore rounds to?

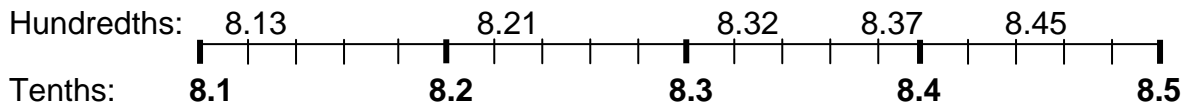


- a) 12.2 is closest to the whole number 12 and rounds to 12.
- b) 15.4 is closest to the whole number and rounds to .
- c) 14.6 is closest to the whole number and rounds to .
- d) 13.4 is closest to the whole number and rounds to .
- e) 12.8 is closest to the whole number and rounds to .

2. Create a rule to help determine which **whole number** a decimal number is closest to. (Hint: Look at the number to the right of the decimal point.)

Compare your rule to that of a classmate.

3. Round the decimal numbers to the nearest **tenth** using a number line.



- a) 8.13 is closest to 8.1 and rounds to 8.1.
- b) 8.37 is closest to and rounds to .
- c) 8.32 is closest to and rounds to .
- d) 8.45 is closest to and rounds to .
- e) 8.21 is closest to and rounds to .

4. Create a rule to help determine which **tenth** a decimal number is closest to. (Hint: Look at the second number to the right of the decimal point.)

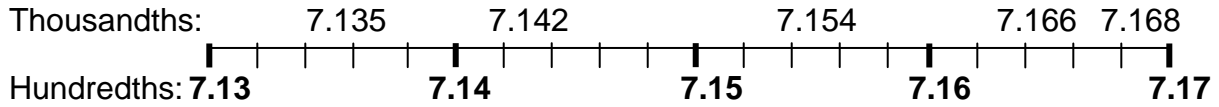
Discuss your rule with your teacher or a classmate.

Remember, a number exactly in the middle of two other numbers rounds up.

5. Michael works at a stockyard. His job is to weigh each of the calves as they are brought in. He must record the mass of each calf to the nearest **tenth** of a kilogram. Round each mass to the nearest tenth and place the answer in the blanks. The first one has been done for you.

Calf Mass (in kg)	Calf Mass to the Nearest Tenth of a kg
83.37	83.4
78.92	
66.09	
75.24	
93.55	
69.38	
86.73	
90.36	
62.51	
89.66	
76.34	
76.19	
97.88	

6. Use the number line to round the decimal numbers to the nearest **hundredth**.



- a) 7.168 is closest to 7.17 and rounds to 7.17.
- b) 7.142 is closest to and rounds to .
- c) 7.166 is closest to and rounds to .
- d) 7.154 is closest to and rounds to .
- e) 7.135 is closest to and rounds to .

7. In downhill skiing competitions, times are often only hundredths of a second apart. Look at the following times and round them to the nearest hundredth of a second. The first time has been done for you.



Downhill Skiing Times	Downhill Skiing Times Rounded to the Nearest Hundredth of a Second
56.286	56.29
56.174	
55.359	
55.431	
56.747	
55.322	
57.453	
55.980	
57.455	
56.768	
55.719	
58.343	
56.657	