Decimal Place Value

A place-value chart can help you find the value of each digit in a decimal.

	Ones	Tenths	Hundredths	Thousandths	Ten-Thousandths
Decimal:	2	3	6	5	1

Read: Write: two 2.0

0.3

0.06

0.005

three tenths six hundredths five thousandths one ten-thousandth

0.0001

In Standard Form: 2.3651

In Expanded Form: 2.0 + 0.3 + 0.06 + 0.005 + 0.0001

In Word Form: two and three thousand, six hundred fifty-one ten-thousandths

Record each decimal in the place-value chart. Write each decimal in expanded form and word form.

1. 1.51

Ones	Tenths	Hundredths	Thousandths	Ten-Thousandths

Expanded form:

Word form: _

2. 4.973

Ones	Tenths	Hundredths	Thousandths	Ten-Thousandths
•				

Expanded form:

Word form: ____

3. 7.0458

Ones	Tenths	Hundredths	Thousandths	Ten-Thousandths

Expanded form: _____

Word form:

Equivalent Decimals

Equivalent decimals are different names for the same number or amount.

$$2 \text{ tenths} = 20 \text{ hundredths}$$

$$0.2 = 0.20$$

In the place-value chart, both numbers have a 2 in the tenths place.

Ones	-	Tenths	Hundredths
0	•	2	
0	•	2	0

← 2 tenth

← 20 hundredths

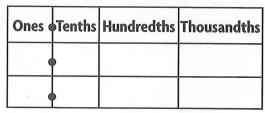
The zero to the right of the 2 does not change the value of the decimal. So, 0.2 and 0.20 are equivalent.

Write the numbers in the place-value chart. Then write equivalent or not equivalent to describe each pair of decimals.

1. 2.5 and 2.50

Ones	•	Tenths	Hundredths
	•		

2. 0.73 and 0.703



Write the two decimals that are equivalent.

- 3. 3.05 3.050
- **4.** 1.110
- 5. 0.180 0.0180
- **6.** 7.77

3.500

1.11

- 0.018
- 7.707 7.770

Write an equivalent decimal for each number.

7. 0.05

8. 2.100

9. 2.875

10. 0.040

Compare and Order Decimals

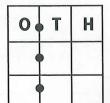
You can use a place-value chart to compare 6.741 and 6.742.

Ones	Tenths	Hundredths	Thousandths
6	7	4	1
6	7	4	2
\uparrow	\uparrow	\uparrow	\uparrow
same	same	same	2 > 1

So, 6.742 > 6.741.

Write the numbers in the place-value chart. Then write <, >, or = in each \bigcirc .

1. 2.45 () 2.54



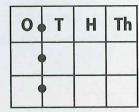
3. 72.648 72.658

T	0	Т	Н	Th
	•			
			4	

Write <, >, or = in each \bigcirc .

- **5.** 3.21 () 3.210
- **7.** 6.275 () 6.257

2. 6.23 () 6.230



4. 564.876 564.786

Н	T	0	T	Н	Th
		(

- **6.** 721.460 72.146
- **8.** 468.036 () 468.136

Order from least to greatest.

- **9.** 16.54, 16.56, 16.55 _____
- 10. 3.400, 3.004, 3.040

Round Decimals

The same rules you learned for rounding whole numbers can be used to round decimals.

- Step 1: <u>Underline</u> the digit in the place to which you want to round.
- Step 2: Compare the digit at the right of the underlined digit to 5.
 Round Down: If the digit at the right is less than 5, the underlined digit stays the same.
 Round Up: If the digit at the right is 5 or greater, increase the underlined digit by 1.
- **Step 3:** Rewrite all digits to the right of the underlined digit as zeros. An equivalent decimal can be written by leaving off trailing zeros.
- A. Round 5.643 to the nearest hundredth.

Underline. 5.643

Compare. 3 < 5 Round down.

Rewrite. 5.640 or 5.64

B. Round 0.8287 to the nearest thousandth.

Underline. 0.8287

Compare. 7 > 5 Round up.

Rewrite. 0.8290 or 0.829

1. Round 4.1872 to the place of the **bold-faced** digit.

Underline, 4.1872

Compare. ______5 Round _____.

Rewrite.

2. Round 82.64751 to the nearest thousandth.

Underline. 82.6475

Compare. _____5 Round _____.

Rewrite.

Round each number to the place of the bold-faced digit.

- 3. 7.325
- 4. 9.0287
- **5.** 108.1**0**8
- **6.** 2**6**.3199

Round 12.8405 to the place named.

- 7. hundredths
- 8. ones
- 9. tenths
- 10. thousandths