Name _____

# Place Value with Decimals 1.5

**Learning Target:** Write decimals in different forms and compare the values of digits.

**Success Criteria:**

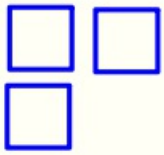
- I can identify the value of a digit in a decimal.
- I can write decimals in different forms.
- I can compare the values of two identical digits in a decimal.

## Explore and Grow

Model the number. Draw your model.
Then write the value of each digit.

3.33



| Ones | . | Tenths | Hundredths |
|---|---|---|---|
|  | |  |  |
| 3 | | 0.3 | 0.03 |

**Repeated Reasoning** Compare the value of the ones digit to the value of the tenths digit. Then do the same with the tenths and the hundredths digits. Explain why you can use base ten blocks to model ones, tenths, and hundredths.

The value of the ones digit is 10 times the value of the tenths digit. The value of the tenths digit is 10 times the value of the hundredths digit. Base ten blocks can represent the values of ones, tenths, and hundredths.

## Think and Grow: Place Value with Decimals

**Key Idea** In a place value chart, whole numbers are to the left of the decimal point. Decimals are to the right of the decimal point.

Use the place value of the last digit in a decimal to help you read it.

| Ones Period | | | and | Decimals | | |
|---|---|---|---|---|---|---|
| Hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| | | 5 | . | 4 | 6 | 9 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 5 ones | | 4 tenths | 6 hundredths | 9 thousandths |
| | | 5 | | 0.4 | 0.06 | 0.009 |

The number 5.469 is read as "five and four hundred sixty-nine thousandths."

**Example** Write the number in standard form, word form, and expanded form.

| Ones Period | | | | Decimals | | |
|---|---|---|---|---|---|---|
| Hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| | | 2 | . | 5 | 5 | 7 |

Standard form: 2.557

Word form: two and five hundred fifty-seven thousandths

Expanded form: $2 \times 1 + \underline{5} \times \underline{\frac{1}{10}} + 5 \times \frac{1}{100} + \underline{7} \times \underline{\frac{1}{1000}}$

### Show and Grow

Write the number in two other forms.

1. Standard form: 0.398

   Word form: three hundred ninety-eight thousandths.

   Expanded form: $3 \times \frac{1}{10} + 9 \times \frac{1}{100} + 8 \times \frac{1}{1000}$

2. Standard form: 8.046

   Word form: eight and forty-six thousandths

   Expanded form: $8 \times 1 + 4 \times \frac{1}{100} + 6 \times \frac{1}{1000}$

3. Compare the values of the 5s in the number 2.557.

   The 5 in the tenths place is 10 times greater than the 5 in the hundredths place.

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## Apply and Grow: Practice

Write the value of the underlined digit.

**4.** 0.4̲18

0.4

**5.** 5.29̲6

0.09

**6.** 3̲.806

3

**7.** 0.54̲7

0.007

Write the number in two other forms.

**8.** Standard form: 4.908

Word form: four and nine hundred eight thousandths

Expanded form: $4 \times 1 + 9 \times \frac{1}{10} + 8 \times \frac{1}{1{,}000}$

**9.** Standard form: 0.125

Word form: one hundred twenty-five thousandths

Expanded form: $1 \times \frac{1}{10} + 2 \times \frac{1}{100} + 5 \times \frac{1}{1000}$

**10.** Compare the values of the 4s in the number 0.844.

The 4 in the hundredths place is 10 times greater than the 4 in the thousandths place.

**11.** Compare the values of the 3s in the number 3.367.

The 3 in the ones place is 10 times greater than the 3 in the tenths place.

**12.** A pygmy jerboa weighs one hundred thirty-two thousandths pound. Write this number in standard form.

0.132 lbs.

**13.** MP **Reasoning** Is 9.540 equivalent to 9.54? Explain.

Yes, the zero in the thousandths place has no value.

**14.** DIG DEEPER! Write three decimals that are equivalent to $6 \times 1 + 4 \times \frac{1}{10}$.

6.4

6.400000

6.40

## Think and Grow: Modeling Real Life

| Heaviest Fruit Records | |
|---|---|
| **Fruit** | **Mass (kg)** |
| Tomato | 3.906 |
| Chili pepper | 0.348 |

**Example** How do the values of the 3s in the masses of the fruits compare?

Use a place value chart to help you find the value of each 3.

| Ones Period | | | | Decimals | | |
|---|---|---|---|---|---|---|
| **Hundreds** | **Tens** | **Ones** | **.** | **Tenths** | **Hundredths** | **Thousandths** |
| | | 3 | . | 9 | 0 | 6 |
| | | 0 | . | 3 | 4 | 8 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 3 | . | 0.9 | 0.00 | 0.006 |
| | | 0 | . | 0.3 | 0.04 | 0.008 |

The value of the 3 in the mass of the tomato is 3.

The value of the 3 in the mass of the chili pepper is 0.3.

So, the value of the 3 in the mass of the tomato is 10 times the value of the 3 in the mass of the chili pepper. Also, the value of the 3 in the mass of the chili pepper is $\frac{1}{10}$ the value of the 3 in the mass of the tomato.

## Show and Grow

**15.** Two baseball players have batting averages of 0.358 and 0.345. How do the values of the 5s in the batting averages compare?

The 5 in the hundredths place is 10 times greater than the 5 in the thousandths place.

**16.** The stopwatch shows a runner's 100-meter dash time. Write the time in words.


fifteen and seventy-six hundredths seconds

**17.** DIG DEEPER! You exchange 1 U.S. dollar for Australian dollars and 1 U.S. dollar for Kuwaiti dinars. Do you have 10 times as many Australian dollars as Kuwaiti dinars? Explain.

| Recent Foreign Exchange Rates | |
|---|---|
| 1 U.S. dollar | 1.302 Australian dollars |
| 1 U.S. dollar | 0.302 Kuwaiti dinars |

no; 1.302 is not equal to 10 x 0.302. If I multiply 0.302 by 10, I would move the decimal point one place to the right. Therefore 3.02 is equal to 10 x 0.302, not 1.302.

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## Homework & Practice 1.5

**Learning Target:** Write decimals in different forms and compare the values of digits.

**Example** Write the number in standard form, word form, and expanded form.

| Ones Period | | | | Decimals | | |
|---|---|---|---|---|---|---|
| Hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| | | 6 | . | 9 | 2 | 8 |

Standard form: 6.928

Word form: six and nine hundred twenty-eight thousandths

Expanded form: $6 \times 1 + 9 \times \frac{1}{10} + 2 \times \frac{1}{100} + 8 \times \frac{1}{1{,}000}$

Write the value of the underlined digit.

**1.** 5.437

**2.** 0.85$\underline{2}$

**3.** 0.96$\underline{2}$

**4.** 4.1$\underline{6}$5

Write the number in two other forms.

**5.** Standard form: 9.267

Word form:

Expanded form:

**6.** Standard form:

Word form: two and forty-three thousandths

Expanded form:

**7.** Compare the values of the 6s in the number 1.668.

**8.** Compare the values of the 7s in the number 7.704.

**9.** A pygmy possum weighs 0.097 pound. Write this number in word form.

**10.** **Which One Doesn't Belong?** Which one does *not* belong with the other three?

$5 \times \frac{1}{10} + 1 \times \frac{1}{100} + 4 \times \frac{1}{1{,}000}$

0.514

five and fourteen tenths

| Ones | . | Tenths | Hundredths | Thousandths |
|---|---|---|---|---|
| 0 | . | 5 | 1 | 4 |

**11.** **Reasoning** Which number cards are equal to the value of the underlined digit?

$0.73\underline{2}$

| | | | |
|---|---|---|---|
| $2 \times \frac{1}{1{,}000}$ | $2 \times \frac{1}{100}$ | 2 thousand | 2.000 |
| 2 | two thousandths | 0.002 | 2,000 |

**12.** **Modeling Real Life** How do the values of the 5s in the heights of the plants compare?

| Classroom Plant Heights | |
|---|---|
| **Plant** | **Height (in.)** |
| Peace lily | 1.125 |
| Venus flytrap | 1.250 |

**13.** **Modeling Real Life** The world's largest gold nugget is located in Las Vegas, Nevada. It has a mass of about 27.247 kilograms. Write how to say the nugget's mass in words.

## Review & Refresh

Compare.

**14.** $\frac{8}{10} \bigcirc \frac{80}{100}$

**15.** $\frac{5}{8} \bigcirc \frac{3}{6}$

**16.** $\frac{7}{2} \bigcirc \frac{10}{8}$