

Decimal Code Breakers

Read, write, and expand decimals through thousandths.

GRADE 5 • NY-5.NBT.3.a

NY-5.NBT.3.a "Read and write decimals to thousandths using base-ten numerals, number names, and expanded form."

NAME _____

DATE _____

DECIMAL PLACE VALUES

The digits to the right of the decimal point show tenths, hundredths, and thousandths. Use and for the decimal point in a number name. In expanded form, write each digit as the value of its place.

WORKED EXAMPLE

Write 6.347 in number name and expanded form.

1. The 3 is in the tenths place, the 4 is in the hundredths place, and the 7 is in the thousandths place.
2. Read the decimal part as 347 thousandths.
3. Write each nonzero digit as a fraction with its place-value denominator.

Answer: six and three hundred forty-seven thousandths; $6 + \frac{3}{10} + \frac{4}{100} + \frac{7}{1000}$

PRACTICE 6 problems

- 1** Write 0.509 in number name.

ANSWER _____

- 2** Write twelve and seventy-four thousandths in base-ten numerals.

ANSWER _____

- 3** Write 8.306 in expanded form. Include each nonzero place value.

ANSWER _____

- 4** Write $\frac{9}{10} + \frac{5}{100}$ as a base-ten numeral.

ANSWER _____

- 5** Write $2 + \frac{4}{10} + \frac{7}{1000}$ as a base-ten numeral.

ANSWER _____

- 6** Write 15.062 in number name and expanded form.

ANSWER _____

APPLY IT Show your work

- 1** Jada timed a coding challenge. Her time was 14.583 seconds. Write her time in number name and expanded form.

WORK SPACE

ANSWER _____

- 2** A drone flies two and nine thousandths kilometers during a test. Write this distance as a base-ten numeral and in expanded form.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Maya says that 4.070 can be read as four and seventy thousandths. Is Maya correct? Explain using expanded form or place value.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Write 0.509 in number name.	zero and five hundred nine thousandths
2	Write twelve and seventy-four thousandths in base-ten numerals.	12.074
3	Write 8.306 in expanded form. Include each nonzero place value.	$8 + 3/10 + 6/1000$
4	Write $9/10 + 5/100$ as a base-ten numeral.	0.95
5	Write $2 + 4/10 + 7/1000$ as a base-ten numeral.	2.407
6	Write 15.062 in number name and expanded form.	fifteen and sixty-two thousandths; $15 + 6/100 + 2/1000$

PART 2 • APPLY IT

- fourteen and five hundred eighty-three thousandths; $14 + 5/10 + 8/100 + 3/1000$** Read the digits after the decimal point as 583 thousandths. Then write the value of each nonzero digit by place value.
- 2.009; $2 + 9/1000$** The words name 9 thousandths, so the 9 goes in the thousandths place. The tenths and hundredths places are zeros.

CHALLENGE

Yes. $4.070 = 4 + 7/100$, and $7/100 = 70/1000$, so the number is four and seventy thousandths.

Accept equivalent expanded forms, including forms that include or omit zero-value terms. Accept standard hyphenation variations in number names.