LESSON MAKER PRO

Decimal Translation Lab

Read, write, and expand decimals through thousandths.

GRADE 5 · 5.NBT.A.3a

CCSS.Math.Content.5.NBT.A.3a "Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000)."

NAME _____ DATE _____

PLACE VALUE MATTERS

Digits to the right of the decimal point name tenths, hundredths, and thousandths. Read the whole-number part, say "and" for the decimal point, then name the decimal part as a fraction with the place value of its last digit. Zeros can hold a place, even when their value is zero.

WORKED EXAMPLE

Write 58.407 in expanded form.

1. Write the whole-number part: 5 × 10 + 8 × 1.
2. Write the decimal part: 4 × (1/10) + 0 × (1/100) + 7 × (1/1000).
3. Combine the parts in one expression.

Answer: 5 × 10 + 8 × 1 + 4 × (1/10) + 0 × (1/100) + 7 × (1/1000)

PRACTICE 6 problems

1 Write 6.032 in words.

ANSWER _____

2 Write "forty-two and five hundred nine thousandths" as a base-ten numeral.

ANSWER _____

3 Write 7.214 in expanded form.

ANSWER _____

4 Write this expanded form as a base-ten numeral: 5 × 10 + 1 × 1 + 6 × (1/10) + 8 × (1/100) + 0 × (1/1000).

ANSWER _____

5 Write 0.305 in expanded form.

ANSWER _____

6 Write 903.071 in words and in expanded form.

ANSWER _____

APPLY IT Show your work

1 A coding game shows that Maya finished a level in 7.045 seconds. Write the time in words and in expanded form.

WORK SPACE

ANSWER _____

2 During a bike ride, a trail sign says the route is "sixteen and two hundred thirty thousandths kilometers" long. Write the distance as a base-ten numeral and in expanded form.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A decimal has 4 ones, 2 tenths, 0 hundredths, and 9 thousandths. Write it as a base-ten numeral, in words, and in expanded form. Then explain how the 0 hundredths affects the value.

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write 6.032 in words.	**six and thirty-two thousandths**
2	Write “forty-two and five hundred nine thousandths” as a base-ten numeral.	**42.509**
3	Write 7.214 in expanded form.	**7 × 1 + 2 × (1/10) + 1 × (1/100) + 4 × (1/1000)**
4	Write this expanded form as a base-ten numeral: 5 × 10 + 1 × 1 + 6 × (1/10) + 8 × (1/100) + 0 × (1/1000).	**51.680**
5	Write 0.305 in expanded form.	**0 × 1 + 3 × (1/10) + 0 × (1/100) + 5 × (1/1000)**
6	Write 903.071 in words and in expanded form.	**nine hundred three and seventy-one thousandths; 9 × 100 + 0 × 10 + 3 × 1 + 0 × (1/10) + 7 × (1/100) + 1 × (1/1000)**

PART 2 · APPLY IT

1. **seven and forty-five thousandths; 7 × 1 + 0 × (1/10) + 4 × (1/100) + 5 × (1/1000)** The last digit is in the thousandths place, so the decimal part is forty-five thousandths. Include the zero tenths term in the expanded form.
2. **16.230; 1 × 10 + 6 × 1 + 2 × (1/10) + 3 × (1/100) + 0 × (1/1000)** Write 16 as the whole-number part and 230 as the three decimal digits. The final zero is in the thousandths place.

CHALLENGE

4.209; four and two hundred nine thousandths; 4 × 1 + 2 × (1/10) + 0 × (1/100) + 9 × (1/1000). The 0 holds the hundredths place, so the 9 stays in the thousandths place.

Accept equivalent expanded forms that correctly show each nonzero place value. For word names, accept “and” for the decimal point and equivalent wording such as “zero and three hundred five thousandths” for 0.305.