LESSON MAKER PRO

Decimal Point Moves

Multiply and divide decimals by powers of 10

GRADE 5 · 5.NBT.A.3.b

5.NBT.A.3.b "Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10, using whole-number exponents to denote powers of 10."

NAME _____ DATE _____

FOLLOW THE EXPONENT

The exponent in a power of 10 tells you how many places to move the decimal point. Move right when multiplying and left when dividing. Write zeros to fill any empty places.

WORKED EXAMPLE

Find 6.42×10^2.

1. The exponent is 2, so move the decimal point two places right.
2. After one place, 6.42 becomes 64.2.
3. After two places, 64.2 becomes 642.

Answer: $6.42 \times 10^2 = 642$

PRACTICE 6 problems

1 Find 4.57×10^3.

ANSWER _____

2 Find $83.6 \div 10^2$.

ANSWER _____

3 Find 0.029×10^3. Explain how the exponent helps you place the decimal point.

ANSWER _____

4 Find $7.05 \div 10^3$.

ANSWER _____

5 Find 12.8×10^1.

ANSWER _____

6 Find $0.4 \div 10^4$.

ANSWER _____

APPLY IT Show your work

1 A trail at a skate park is 0.725 kilometers long. How many meters long is the trail? Write a power-of-10 equation. (1 kilometer = 1,000 meters.)

WORK SPACE

ANSWER _____

2 A video of a skateboard trick lasts 3,450 milliseconds. How many seconds long is the video? Write a power-of-10 equation. (1 second = 1,000 milliseconds.)

WORK SPACE

ANSWER _____

CHALLENGE One step up

A number divided by 10^3 is 0.0468. What was the original number? Explain how moving the decimal point checks your answer.

WORK SPACE AND ANSWER

ANSWER KEY

Decimal Point Moves

GRADE 5 · 5.NBT.A.3.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 4.57×10^3.	**4,570**
2	Find $83.6 \div 10^2$.	**0.836**
3	Find 0.029×10^3. Explain how the exponent helps you place the decimal point.	**29. The exponent 3 tells me to move the decimal point three places right.**
4	Find $7.05 \div 10^3$.	**0.00705**
5	Find 12.8×10^1.	**128**
6	Find $0.4 \div 10^4$.	**0.00004**

PART 2 · APPLY IT

1. **0.725×10^3 = 725 meters** Multiply by 10^3 to change kilometers to meters. Move the decimal point three places right.
2. **$3{,}450 \div 10^3$ = 3.45 seconds** Divide by 10^3 to change milliseconds to seconds. Move the decimal point three places left.

CHALLENGE

The original number was 46.8. Dividing 46.8 by 10^3 moves its decimal point three places left, giving 0.0468.

Accept equivalent answers with or without commas in whole numbers. For explanations, look for the correct direction and number of decimal places.