LESSON MAKER PRO

Place Value Shifts

Track how a digit's value changes when it moves.

GRADE 5 · MA.5.NSO.1.1

MA.5.NSO.1.1 "Express how the value of a digit in a multi-digit number with decimals to the thousandths changes if the digit moves one or more places to the left or right."

NAME _____ DATE _____

SHIFT THE VALUE

Moving a digit one place left makes its value 10 times as great. Moving a digit one place right makes its value 1/10 as great. For more than one move, use a factor of 10 for each place.

WORKED EXAMPLE

In 6.482, move the digit 8 one place to the left. What is its new value, and how does it compare to its original value?

1. The 8 is in the hundredths place, so its value is 0.08.
2. Moving one place left puts the 8 in the tenths place.
3. Its new value is 0.8.
4. 0.8 is 10 times 0.08.

Answer: The new value is 0.8. It is 10 times the original value.

PRACTICE 6 problems

1 In 3.751, move the digit 7 one place to the right. What is its new value, and how does it compare to its original value?

ANSWER _____

2 In 9.531, move the digit 5 two places to the left. What is its new value, and how does it compare to its original value?

ANSWER _____

3 In 27.093, move the digit 9 one place to the left. What is its new value, and how does it compare to its original value?

ANSWER _____

4 In 71.235, move the digit 2 two places to the right. What is its new value, and how does it compare to its original value?

ANSWER _____

5 A digit has a value of 0.005. It moves two places to the left. What is its new value, and how does it compare to its original value?

ANSWER _____

6 In 905.176, move the digit 1 one place to the right. What is its new value, and how does it compare to its original value?

ANSWER _____

APPLY IT Show your work

1 A robotics team records a sensor reading of 12.507 meters. The digit 5 has a value of 0.5. If the digit 5 moved two places to the right, what would its value be? How would the new value compare to the original value?

WORK SPACE

ANSWER _____

2 A runner's lap time is recorded as 63.019 seconds. The digit 1 has a value of 0.01. If the digit 1 moved two places to the left, what would its value be? How would the new value compare to the original value?

WORK SPACE

ANSWER _____

CHALLENGE One step up

In 48.808, the digit 8 appears three times. Use the 8 in the thousandths place. Move it two places to the left. What is its new value, and how does it compare to its original value? Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Place Value Shifts

GRADE 5 · MA.5.NSO.1.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In 3.751, move the digit 7 one place to the right. What is its new value, and how does it compare to its original value?	**The new value is 0.07. It is 1/10 of the original value, 0.7.**
2	In 9.531, move the digit 5 two places to the left. What is its new value, and how does it compare to its original value?	**The new value is 50. It is 100 times the original value, 0.5.**
3	In 27.093, move the digit 9 one place to the left. What is its new value, and how does it compare to its original value?	**The new value is 0.9. It is 10 times the original value, 0.09.**
4	In 71.235, move the digit 2 two places to the right. What is its new value, and how does it compare to its original value?	**The new value is 0.002. It is 1/100 of the original value, 0.2.**
5	A digit has a value of 0.005. It moves two places to the left. What is its new value, and how does it compare to its original value?	**The new value is 0.5. It is 100 times the original value.**
6	In 905.176, move the digit 1 one place to the right. What is its new value, and how does it compare to its original value?	**The new value is 0.01. It is 1/10 of the original value, 0.1.**

PART 2 · APPLY IT

1. **Its new value would be 0.005. It would be 1/100 of its original value.** The 5 starts in the tenths place. Moving it two places right puts it in the thousandths place, so 0.5 becomes 0.005.
2. **Its new value would be 1. It would be 100 times its original value.** The 1 starts in the hundredths place. Moving it two places left puts it in the ones place, so 0.01 becomes 1.

CHALLENGE

The 8 starts with a value of 0.008. Moving it two places left gives it a value of 0.8. The new value is 100 times the original value because each move left makes the value 10 times as great.

Accept equivalent decimal forms, such as .8 for 0.8 and 0.80 for 0.8. Students may state comparisons as "10 times as great," "100 times as great," "one tenth as much," or "one hundredth as much."