LESSON MAKER PRO

Decimal Quick Shifts

Find each change using mental math and place value.

GRADE 5 · 5.N.3.4

5.N.3.4 "Apply mental math and knowledge of place value (no written computations) to find 0.1 more or 0.1 less than a number, 0.01 more or 0.01 less than a number, and 0.001 more or 0.001 less than a number."

NAME _____ **DATE** _____

Calculate mentally first. Record only the final answer; then explain your mental strategy aloud. Do not write calculations.

CHANGE ONE PLACE

Compute in your head; write only final answers. Explain your strategy aloud afterward. To find 0.1, 0.01, or 0.001 more or less, change the tenths, hundredths, or thousandths place. If a digit passes 9 or goes below 0, regroup with the place to its left.

MENTAL STRATEGY EXAMPLE

What is 0.01 more than 8.497?

1. Add 1 hundredth to 9 hundredths to make 10 hundredths.
2. Trade 10 hundredths for 1 tenth, so 4 tenths becomes 5 tenths.
3. Keep the 8 ones and 7 thousandths.

Answer: 8.507

PRACTICE 6 problems

1 What is 0.1 more than 4.27?

Final answer only _____

2 What is 0.1 less than 7.03?

Final answer only _____

3 What is 0.01 more than 2.486?

Final answer only _____

4 What is 0.01 less than 5.302?

Final answer only _____

5 What is 0.001 more than 0.999?

Final answer only _____

6 What is 0.001 less than 10.000?

Final answer only _____

APPLY IT Solve mentally; record the answer

1 A player finishes a game level in 12.348 seconds. On the next try, the time is 0.001 second less. What is the new time?

Final answer only _____

2 A pitcher holds 1.95 liters of lemonade. You add 0.1 liter. How much lemonade is in the pitcher now?

Final answer only _____

CHALLENGE One step up

A digital meter reads 3.999 liters. You add 0.001 liter, then drain 0.01 liter. What is the final reading? Compute mentally and write only the final answer. Then explain both place-value changes aloud.

Final answer only _____

ANSWER KEY

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Ask students to calculate mentally before recording final answers. Hear their strategy explanations aloud; the worked reasoning below is for teacher reference, not a requirement to write calculations.

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is 0.1 more than 4.27?	**4.37**
2	What is 0.1 less than 7.03?	**6.93**
3	What is 0.01 more than 2.486?	**2.496**
4	What is 0.01 less than 5.302?	**5.292**
5	What is 0.001 more than 0.999?	**1.000**
6	What is 0.001 less than 10.000?	**9.999**

PART 2 · APPLY IT

1. **12.347 seconds** Decrease the thousandths digit from 8 to 7.
2. **2.05 liters** Add 1 tenth to 9 tenths. Regroup 10 tenths as 1 whole.

CHALLENGE

Adding 0.001 liter to 3.999 liters makes 4.000 liters. Draining 0.01 liter leaves 3.990 liters.

Have students compute mentally first and record only final answers. Ask for oral explanations; shown steps model mental reasoning, not written procedures to reproduce. Accept equivalent decimal forms, such as 1 for 1.000, when the value is correct. In the challenge, look for both place-value changes and a final reading of 3.99 liters.