



Place value and powers of ten

GRADE 5 MATH

Name _____

Date _____

Name the digit and the place it moves to. One skill: **place value and powers of ten**.

WORKED EXAMPLE

Multiplying by 10 moves every digit **one place left**; dividing by 10 moves every digit **one place right**. A digit one place to the left is worth **ten times** as much, and one place to the right **one tenth** as much. The **decimal point does not move** — it marks the boundary between ones and tenths, and the digits travel past it. So $2.7 \times 10 = 27$, and “add a zero” gives 2.70, which is the same amount as 2.7. In whole numbers a zero appears only because the move leaves the ones place **empty**. And 10^3 means three tens multiplied — 1000, not 30.

1. Work out 0.6×10

FLUENCY

Show your thinking

Answer

2. Work out 2.7×10^2

FLUENCY

Show your thinking

Answer

3. Work out $450 \div 10^3$

FLUENCY

Show your thinking

Answer

4. Say what happens to the 2 and to the 7 in 2.7 when it is multiplied by 10. Name the place each digit starts in and ends in.

APPLICATION

Show your thinking

Answer

5. Priya works out 2.7×10 by adding a zero, and writes 2.70. Explain why her rule gave the right answer for 34×10 and the wrong one here.

REASONING

Show your thinking

Answer

6. In 700, the 7 is worth 700. In 70 it is worth 70, and in 0.7 it is worth seven tenths. Describe the rule that connects all three, in both directions.

REASONING

Show your thinking

Answer