Answers

Year 5

Multiplying & Dividing Decimals by 10, 100, 1000

Read the explanations carefully if you made a mistake to see how the numbers shifted.

Part 1: Arithmetic Warm-up

1. 42.6

   Why? Multiplying by 10 moves the digits **one** place to the left. The 4 moves from the ones column to the tens column.

2. 0.158

   Why? Dividing by 100 moves the digits **two** places to the right. The 1 moves from the tens column past the decimal point into the tenths column.

3. 73

   Why? Multiplying by $1{,}000$ moves the digits **three** places to the left. 0.073 becomes a whole number.

4. 0.6124

   Why? Dividing by $1{,}000$ moves the digits **three** places to the right. All the numbers slide down together.

5. 93

   Why? Multiplying by 100 moves the digits **two** places to the left. The 9 skips from the tenths up to the tens column.

Part 2: SATs-Style Missing Number Questions

6. 100

   Check: Look at 6.108 and 610.8. The digits shifted **two** places to the left, which means it was multiplied by 100.

7. $\div$

   Check: 43.9 became 0.439. The number got smaller, so the missing sign must be a **division (÷)** sign.

Continued ...

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8. 25

   Check: Work backward! Do the opposite of division and multiply 0.025×1000. Shifting the digits three places to the left gives you 25.

9. 100

   Check: Break it into two halves. The left side is $0.74 \times 10 = 7.4$. To make the right side balance and also equal 7.4, you need to do $740 \div 100$.

Part 3: Balance and Comparison

10. $3.4 \times 100 = 3400 \div 10$ true

    Both sides equal 340.

    $0.091 \times 1000 = 9.1 \times 10$ true

    Both sides equal 91.

    $82.3 \div 10 = 8230 \div 1000$ true

    Both sides equal 8.23.

Part 4: Word Problems and Reasoning

11. 0.145 kg

    How to solve: You need to find the weight of *one* book out of 100. Divide the total weight by 100:

    $14.5 \div 100 = 0.145$ kg

12. 12 grams

    How to solve: You need to find the total weight of $1{,}000$ paperclips. Multiply the weight of one paperclip by $1{,}000$:

    $0.012 \times 1000 = 12$ grams

13. **Your explanation should say something like:**

    "Olivia's final calculation is wrong because 0.054×1000 should equal 54, not 5.4. Multiplying by $1{,}000$ means the digits must move three places to the left, but she only moved them two places."