

Ten Thousand and the Gap

GRADE 4

MATHEMATICS

B1.1

B2.4

Place value is a system, not a list of names. Once you can say what each digit is worth, you can work out a missing part, predict what happens when a number runs out of room, and spot an amount that has been written wrongly.

PART A: MISSING PARTS

1. $8,000 + \underline{\hspace{2cm}} + 40 + 2 = \$8,542$.
2. $\underline{\hspace{2cm}} + 300 + 70 + 1 = \$9,371$.
3. \$10,000 take away \$6,825 leaves \$_____.
4. \$4,999 plus \$1 is \$_____, which rolls three columns over at once.

PART B: REASON ABOUT PLACE VALUE

5. A class fund is recorded as \$2,450 but should be ten times larger. What should it say, and what happens to every digit?

SHOW YOUR WORK

Answer: _____

6. Two amounts use the same four digits in a different order: \$3,175 and \$1,735. Which is larger, and by how much?

SHOW YOUR WORK

Answer: _____

7. A term total of \$9,999 is one dollar short of a milestone. What is the milestone, and how many digits does it have?

SHOW YOUR WORK

Answer: _____

PART C: WHICH IS TRUE?

8. Which statement about \$7,070 is true?
- (A) The two 7s are worth \$7,000 and \$70 (B) The two 7s are worth the same amount
- (C) The two 7s are worth \$700 and \$7
9. Which of these is another way to write \$6,308?
- (A) $6,000 + 300 + 8$ (B) $6,000 + 30 + 8$ (C) $600 + 30 + 8$

PART D: DIAGNOSE THE MISTAKE

10. A classmate writes the class total as \$1,0450. Explain what has gone wrong with the place value, write the amount they probably meant, and describe how you would check that a four- or five-digit total has been written correctly.

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ANSWER KEY

1. 500
2. 9,000
3. 3,175
4. 5,000
5. \$24,500. Every digit shifts one place to the left and a zero fills the ones place.
6. \$3,175 is larger, by \$1,440.
7. \$10,000, which has five digits.
8. A) The two 7s are worth \$7,000 and \$70
9. A) $6,000 + 300 + 8$
10. The digits are right but the comma is in the wrong place. A comma sits three digits from the right, and \$1,0450 groups them as 1 and 0450, which is not a real way to write a number. They probably meant \$10,450, which is 1 ten-thousand, 0 thousands, 4 hundreds, 5 tens and 0 ones. A good check is to read the number aloud in groups of three from the right, or to add the place-value parts back together and see whether they give the number you started with.

TEACHER NOTES

Extension beyond the grade-level expectation: Part A works backwards to a missing place-value part, Part B question 1 asks what multiplying by ten does to every digit rather than just the answer, and Part D asks students to diagnose a wrongly written number, which is harder than writing a correct one.