Place-Value Relationships

Spot mistakes, reason, and work backward

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

Moving a digit one place left multiplies its value by 10; moving it one place right divides its value by 10. For example, 4 thousands is $4{,}000$ and 4 hundreds is 400; $4{,}000 \div 400 = 10$.

Worked example

Compare the values of the two 6s in $66{,}000$.

1. The left 6 means $6 \times 10{,}000 = 60{,}000$.
2. The other 6 means $6 \times 1{,}000 = 6{,}000$.
3. $60{,}000 \div 6{,}000 = 10$; the left value is 10 times the right value.

Answer: 10.

Practice Problems

Show your thinking.

1. A student says the 8 in $8{,}000$ is 100 times the 8 in 800. Correct the factor.

2. Find the original value if moving a digit one place left makes its value $50{,}000$.

3. A 6 moves from ones to hundreds. By what factor does its value grow?

4. Complete the exchange: 3 ten-thousands equal how many thousands?

Ten-thousands	Thousands
3	☐

5. A 9 moves from thousands to tens. What is its new value?

6. Which digit has greater value: the 4 in $40{,}200$ or the 4 in $3{,}400$? Give the factor.

7. A digit is worth 70 after a one-place move right. What was its original value?

8. A counter exchanges each thousand block for 10 hundred blocks. How many hundreds replace 12 thousands?

Answer Key

1. 10 times.
2. 5000.
3. 100.
4. 30.
5. 90.
6. The first 4; 100 times as much.
7. 700.
8. 120 hundreds.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $8{,}000 = 8 \times 1{,}000$ and $800 = 8 \times 100$.
2. $8{,}000 \div 800 = 10$.
3. $100 \times 800 = 80{,}000$, not $8{,}000$.

Problem 2

1. One place left multiplies value by 10.
2. Undo that change: $50{,}000 \div 10 = 5{,}000$.
3. $5{,}000 \times 10 = 50{,}000$ checks the start.

Problem 3

1. The original value is $6 \times 1 = 6$.
2. The new value is $6 \times 100 = 600$.
3. $600 \div 6 = 100$: two left moves each multiply by 10.

Problem 4

1. $3 \times 10{,}000 = 30{,}000$.
2. $30{,}000 \div 1{,}000 = 30$ thousands.
3. $30 \times 1{,}000 = 30{,}000$ checks the exchange.

Problem 5

1. The original value is $9 \times 1000 = 9000$.
2. The new value is $9 \times 10 = 90$.
3. $9000 \div 90 = 100$ checks the place-value change.

Problem 6

1. Its value is $40{,}000$ in the ten-thousands place.
2. The other value is 400 in the hundreds place.
3. $40{,}000 \div 400 = 100$.

Problem 7

1. A right move divides value by 10.
2. Undo it: $70 \times 10 = 700$.
3. $700 \div 10 = 70$ checks the change.

Problem 8

1. 12 thousands have value $12 \times 1{,}000 = 12{,}000$.
2. $12 \times 10 = 120$ hundred blocks.
3. $120 \times 100 = 12{,}000$ preserves the value.

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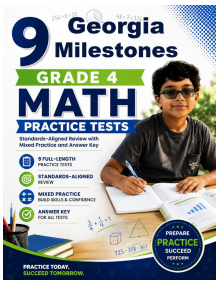

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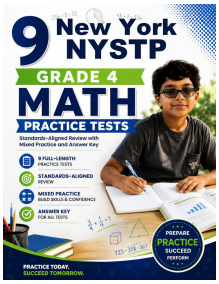

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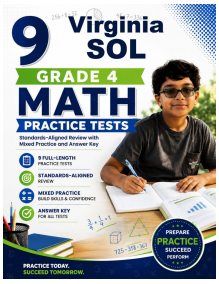

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