Place-Value Relationships

Apply the skill to decisions and designs

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. Design a score in which a 5 has 100 times its hundreds-place value. Give the new value.

2. A place-value machine changes $4{,}000$ into 400. Did it multiply or divide by 10?

3. A display has 2 hundred-thousands. How many ten-thousands show the same value?

Hundred-thousands	Ten-thousands
2	□

4. A clerk changes 600 to $6{,}000$ and calls it a one-place right move. Fix the direction.

5. An unknown place has unit value 100 times the tens place. Find its unit value.

6. A collection of 70 hundreds is regrouped as thousands. How many thousands?

7. In $303{,}000$, compare the two 3 values. Do zeros between them change the factor?

8. A storage code moves an 8 two places right from ten-thousands. Find the new digit value.

Answer Key

1. 50000.
2. Divide by 10.
3. 20.
4. It is one place left.
5. 1000.
6. 7.
7. $300{,}000$ is 100 times $3{,}000$.
8. 800.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The original value is $5 \times 100 = 500$.
2. The new value is $5 \times 10000 = 50000$.
3. $50000 \div 500 = 100$ checks the place-value change.

Problem 2

1. $4{,}000 \div 10 = 400$.
2. The 4 moves from thousands to hundreds, one place right.
3. $400 \times 10 = 4{,}000$ reverses the move.

Problem 3

1. $2 \times 100{,}000 = 200{,}000$.
2. $200{,}000 \div 10{,}000 = 20$.
3. $20 \times 10{,}000 = 200{,}000$ checks the display.

Problem 4

1. The value changes by $6{,}000 \div 600 = 10$.
2. The digit 6 moves from hundreds to thousands.
3. A right move would give $600 \div 10 = 60$, not $6{,}000$.

Problem 5

1. The tens place has unit value 10.
2. $100 \times 10 = 1{,}000$.
3. This is the thousands place, two places left of tens.

Problem 6

1. $70 \times 100 = 7{,}000$.
2. $7{,}000 \div 1{,}000 = 7$ thousands.
3. $7 \times 1{,}000 = 7{,}000$ checks the regrouping.

Problem 7

1. The first 3 is worth $3 \times 100{,}000 = 300{,}000$.
2. The second is worth $3 \times 1{,}000 = 3{,}000$.
3. $300{,}000 \div 3{,}000 = 100$; the two-place gap matters.

Problem 8

1. The original value is $8 \times 10000 = 80000$.
2. The new value is $8 \times 100 = 800$.
3. $80000 \div 800 = 100$ checks the place-value change.

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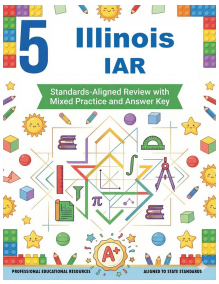

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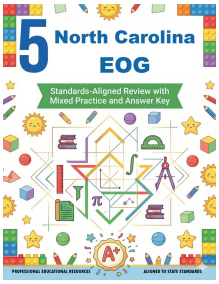

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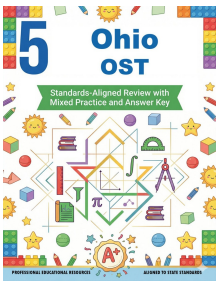

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