Place-Value Relationships

Explore ideas and representations

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 7 in the hundreds place moves one place left. Find its new value.

2. A 3 in the ten-thousands place moves one place right. Find its new value.

3. In $55{,}200$, how many times the second 5 is the first 5 worth?

4. Use a place-value model: 8 thousands equal how many hundreds?

Thousands	Hundreds
8	☐

5. Fix: A 9 in the thousands place is worth 900.

6. A digit in the hundreds place is worth 600. Find the digit.

7. Compare $2{,}000$ and $20{,}000$ with a times statement.

8. A score digit 4 moves from tens to hundreds. Find its new contribution to the score.

Answer Key

1. 7000.
2. 3000.
3. 10.
4. 80.
5. $9{,}000$.
6. 6.
7. $20{,}000$ is 10 times $2{,}000$.
8. 400.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The original value is $7 \times 100 = 700$.
2. The new value is $7 \times 1000 = 7000$.
3. $7000 \div 700 = 10$ checks the place-value change.

Problem 2

1. The original value is $3 \times 10000 = 30000$.
2. The new value is $3 \times 1000 = 3000$.
3. $30000 \div 3000 = 10$ checks the place-value change.

Problem 3

1. The first value is $5 \times 10{,}000 = 50{,}000$.
2. The second value is $5 \times 1{,}000 = 5{,}000$.
3. $50{,}000 \div 5{,}000 = 10$.

Problem 4

1. $8 \times 1{,}000 = 8{,}000$.
2. Each hundred is 100, so $8{,}000 \div 100 = 80$.
3. $80 \times 100 = 8{,}000$ checks the exchange.

Problem 5

1. The thousands place has unit value $1{,}000$.
2. $9 \times 1{,}000 = 9{,}000$.
3. $900 = 9 \times 100$ would put the digit in the hundreds place.

Problem 6

1. One hundred has value 100.
2. $600 \div 100 = 6$.
3. $6 \times 100 = 600$ checks the digit.

Problem 7

1. $2{,}000 = 2 \times 1{,}000$.
2. $20{,}000 = 2 \times 10{,}000$.
3. $20{,}000 \div 2{,}000 = 10$.

Problem 8

1. The original value is $4 \times 10 = 40$.
2. The new value is $4 \times 100 = 400$.
3. $400 \div 40 = 10$ checks the place-value change.

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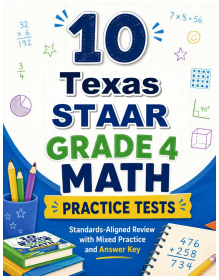

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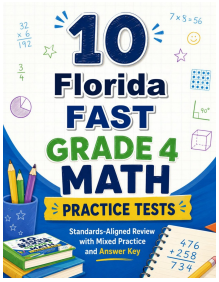

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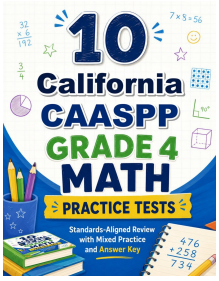

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