Multi-Digit Division

Spot mistakes, reason, and work backward

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

QUICK REVIEW

Divide by making equal groups. $158 \div 6 = 26$ remainder 2 because $6 \times 20 = 120$, $38 - 36 = 2$, and $6 \times 26 + 2 = 158$. A remainder must be smaller than the divisor.

Worked example

Find $936 \div 4$ using partial quotients.

1. Take 230 groups: $4 \times 230 = 920$; $936 - 920 = 16$.
2. Take 4 more groups: $4 \times 4 = 16$; $16 - 16 = 0$.
3. The quotient is $230 + 4 = 234$; check $4 \times 234 + 0 = 936$ and $0 < 4$.
Answer: 234.

Practice Problems

Show your thinking.

1. A division by 8 has quotient 206 and no remainder. Rebuild the dividend.

2. For $987 \div 5$, a student chooses quotient 198. Explain why it is too high and find the correct result.

3. Explain the zero in the quotient for $2{,}106 \div 3$; find the quotient.

4. A division of $1{,}325$ gives quotient 220 and remainder 5. Find the one-digit divisor.

5. A student reports $842 \div 4 = 20$ remainder 42. Fix both quotient and remainder.

6. Find a dividend that gives quotient 136 and remainder 4 when divided by 5.

7. Can $418 \div 6$ have remainder 10? Give its correct result.

8. Use $720 + 48$ as a model for $768 \div 8$. Find each partial quotient.

Part	Groups of 8
720	☐
48	☐

Answer Key

1. 1648.
2. 197 remainder 2.
3. 702; the quotient has 0 tens.
4. 6.
5. 210 remainder 2.
6. 684.
7. No; 69 remainder 4.
8. $90 + 6 = 96$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $8 \times 200 = 1{,}600$.
2. $8 \times 6 = 48$.
3. $1{,}600 + 48 = 1{,}648$; $1{,}648 \div 8 = 206$ checks the dividend.

Problem 2

1. $5 \times 198 = 990$, which exceeds 987 by 3.
2. One fewer group gives $5 \times 197 = 985$.
3. $987 - 985 = 2$ and $2 < 5$, so use quotient 197 remainder 2.

Problem 3

1. $2{,}100 \div 3 = 700$, which uses all $2{,}100$ of that part.
2. The remaining $6 \div 3 = 2$ supplies ones, with no tens left to share.
3. $700 + 2 = 702$; $3 \times 702 = 2{,}106$ verifies the zero place.

Problem 4

1. Remove the remainder: $1{,}325 - 5 = 1{,}320$.
2. The equal groups satisfy $220 \times 6 = 1{,}320$, so the divisor is 6.
3. $6 \times 220 + 5 = 1{,}325$ and $5 < 6$ check the division.

Problem 5

1. $4 \times 200 = 800$ leaves 42.
2. $4 \times 10 = 40$ takes 10 more groups and leaves 2.
3. $200 + 10 = 210$ and $4 \times 210 + 2 = 842$.

Problem 6

1. $5 \times 136 = 680$.
2. $680 + 4 = 684$.
3. $684 \div 5 = 136$ remainder 4, and $4 < 5$.

Problem 7

1. $6 \times 69 = 414$.
2. $418 - 414 = 4$, and $4 < 6$.
3. A remainder of 10 includes another full group of 6, so it is unfinished.

Problem 8

1. $720 \div 8 = 90$.
2. $48 \div 8 = 6$.
3. $90 + 6 = 96$; $8 \times 96 = 768$.

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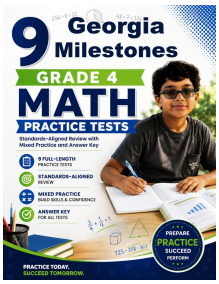

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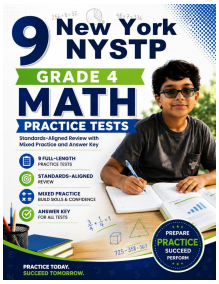

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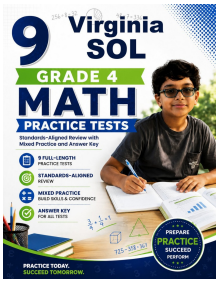

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