Multi-Digit Division

Multi-digit division: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Break a dividend into convenient multiples, combine partial quotients, and check divisor $\times$ quotient $+$ remainder $=$ dividend. For $158/12$, $120/12 = 10$ and $36/12 = 3$, leaving 2: quotient 13 R2, since $12 \times 13 + 2 = 158$. A remainder must be smaller than the divisor.

Worked example

Divide 936 by 24.

1. Use $24 \times 30 = 720$; $936 - 720 = 216$ remains.
2. $216 = 24 \times 9 + 0$, so quotient $= 30 + 9 = 39$ with remainder 0.
3. Check $24 \times 39 + 0 = 936$ and $0 < 24$.
Answer: 39.

Practice Problems

Show your thinking.

1. A student reports $1430 \div 22 = 65$ R22. Correct the remainder.

2. Find x in $36x = 1728$.

3. A division answer is 50 R35. Regroup to repair $1235 \div 24$.

4. A missing quotient times 48 gives 1872. Recover it.

5. Correct a quotient of 8 for $2604 \div 31$. Explain the place value.

6. Find the quotient and remainder for $1697 \div 42$. Verify the remainder is smaller than 42.

Answer Key

1. Quotient 65; remainder 0.
2. 48.
3. 51 R11.
4. 39.
5. 84.
6. 40 R17.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Use $22 \times 60 = 1320$; $1430 - 1320 = 110$ remains.
2. $110 = 22 \times 5 + 0$, so quotient $= 60 + 5 = 65$ with remainder 0.
3. Check $22 \times 65 + 0 = 1430$ and $0 < 22$.

Problem 2

1. Use $36 \times 40 = 1440$; $1728 - 1440 = 288$ remains.
2. $288 = 36 \times 8 + 0$, so quotient $= 40 + 8 = 48$ with remainder 0.
3. Check $36 \times 48 + 0 = 1728$ and $0 < 36$.

Problem 3

1. Use $24 \times 50 = 1200$; $1235 - 1200 = 35$ remains.
2. $35 = 24 \times 1 + 11$, so quotient $= 50 + 1 = 51$ with remainder 11.
3. Check $24 \times 51 + 11 = 1235$ and $11 < 24$.

Problem 4

1. Use $48 \times 30 = 1440$; $1872 - 1440 = 432$ remains.
2. $432 = 48 \times 9 + 0$, so quotient $= 30 + 9 = 39$ with remainder 0.
3. Check $48 \times 39 + 0 = 1872$ and $0 < 48$.

Problem 5

1. Use $31 \times 80 = 2480$; $2604 - 2480 = 124$ remains.
2. $124 = 31 \times 4 + 0$, so quotient $= 80 + 4 = 84$ with remainder 0.
3. Check $31 \times 84 + 0 = 2604$ and $0 < 31$.

Problem 6

1. Use $42 \times 40 = 1680$; $1697 - 1680 = 17$ remains.
2. $17 = 42 \times 0 + 17$, so quotient $= 40 + 0 = 40$ with remainder 17.
3. Check $42 \times 40 + 17 = 1697$ and $17 < 42$.

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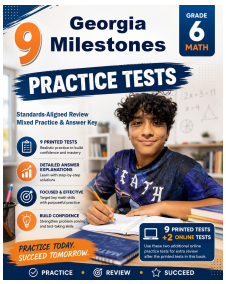

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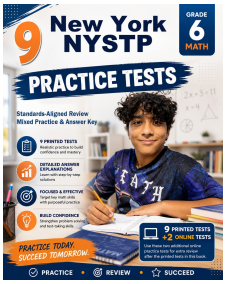

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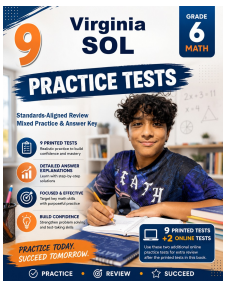

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