Multi-Digit Division

Multi-digit division: Applications and decisions

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. 965 books go in boxes of 24. How many boxes are needed, including a partly filled box?

2. A school has 1440 pencils for 32 classes. Find pencils per class.

3. 1275 riders need buses with 45 seats. How many buses are needed?

4. A printer uses 36 sheets per booklet. How many complete booklets from 2088 sheets?

5. Pack 1854 beads into bags of 27. State full bags and leftover beads.

6. A trip covers 1575 km in 35 equal-distance days. Find daily distance.

Answer Key

1. 41 boxes.
2. 45 pencils per class.
3. 29 buses.
4. 58 complete booklets.
5. 68 full bags; 18 beads left.
6. 45 km per day.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Use $24 \times 40 = 960$; $965 - 960 = 5$ remains.
2. $5 = 24 \times 0 + 5$, so quotient $= 40 + 0 = 40$ with remainder 5.
3. Check $24 \times 40 + 5 = 965$ and $5 < 24$.
4. 40 full containers leave 5 items; use 41 containers in all.

Problem 2

1. Use $32 \times 40 = 1280$; $1440 - 1280 = 160$ remains.
2. $160 = 32 \times 5 + 0$, so quotient $= 40 + 5 = 45$ with remainder 0.
3. Check $32 \times 45 + 0 = 1440$ and $0 < 32$.

Problem 3

1. Use $45 \times 20 = 900$; $1275 - 900 = 375$ remains.
2. $375 = 45 \times 8 + 15$, so quotient $= 20 + 8 = 28$ with remainder 15.
3. Check $45 \times 28 + 15 = 1275$ and $15 < 45$.
4. 28 full containers leave 15 items; use 29 containers in all.

Problem 4

1. Use $36 \times 50 = 1800$; $2088 - 1800 = 288$ remains.
2. $288 = 36 \times 8 + 0$, so quotient $= 50 + 8 = 58$ with remainder 0.
3. Check $36 \times 58 + 0 = 2088$ and $0 < 36$.

Problem 5

1. Use $27 \times 60 = 1620$; $1854 - 1620 = 234$ remains.
2. $234 = 27 \times 8 + 18$, so quotient $= 60 + 8 = 68$ with remainder 18.
3. Check $27 \times 68 + 18 = 1854$ and $18 < 27$.

Problem 6

1. Use $35 \times 40 = 1400$; $1575 - 1400 = 175$ remains.
2. $175 = 35 \times 5 + 0$, so quotient $= 40 + 5 = 45$ with remainder 0.
3. Check $35 \times 45 + 0 = 1575$ and $0 < 35$.

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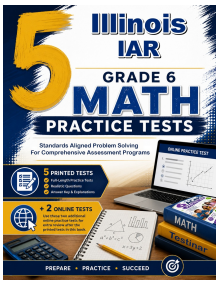

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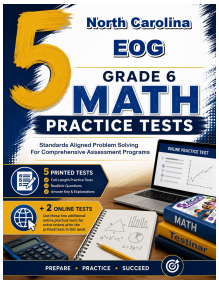

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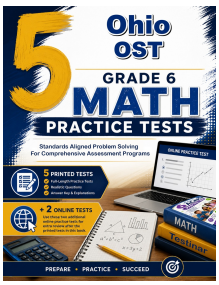

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