Division — 30 Problems · Answer Key + Assessment Guide

3-Digit ÷ 1- and 2-Digit · For the Parent or Teacher

Answer Key

1. 246÷2 = **123**	**2.** 396÷3 = **132**	**3.** 504÷4 = **126**	**4.** 625÷5 = **125**	**5.** 648÷6 = **108**
6. 735÷7 = **105**	**7.** 824÷8 = **103**	**8.** 729÷9 = **81**	**9.** 354÷6 = **59**	**10.** 532÷4 = **133**
11. 437÷3 = **145 R 2**	**12.** 615÷8 = **76 R 7**	**13.** 800÷7 = **114 R 2**	**14.** 953÷6 = **158 R 5**	**15.** 716÷5 = **143 R 1**
16. 240÷12 = **20**	**17.** 396÷11 = **36**	**18.** 480÷15 = **32**	**19.** 575÷25 = **23**	**20.** 504÷14 = **36**
21. 728÷13 = **56**	**22.** 845÷13 = **65**	**23.** 612÷17 = **36**	**24.** 945÷27 = **35**	**25.** 798÷21 = **38**
26. 437÷19 = **23**	**27.** 583÷16 = **36 R 7**	**28.** 700÷23 = **30 R 10**	**29.** 825÷18 = **45 R 15**	**30.** 962÷47 = **20 R 22**

What to Look For

Method choice (any problem)

- Acceptable methods: long division (standard algorithm), partial quotients (subtraction-based), area model.
- Long division is fast but error-prone with two-digit divisors. Partial quotients is slower but more transparent — and many students find it less confusing.
- ★ A student using PARTIAL QUOTIENTS for the harder ones is showing flexibility and self-knowledge.

Problems 1–10 (Single-digit, clean)

- These are diagnostic of fluency with single-digit division facts.
- Watch for: students who can't recall basic facts like 6×8=48 or 7×9=63. If they're stalling on the table, that's a foundation gap — division won't be fluent until facts are.
- Problem 9 (354 ÷ 6 = 59): student should recognize 6×60 = 360 (close to 354), then back off by 1.
- Problem 10 (532 ÷ 4 = 133): 4 doesn't go into 5 once with a clean carry — first digit of quotient is 1, with remainder 1 = 13 ones for next step. Procedural; if they fail this they don't have place value down yet.

Problems 11–15 (Single-digit, with remainders)

- Remainders test whether the student understands what "division doesn't go evenly" means.
- Answers: 145 R2, 76 R7, 114 R2, 158 R5, 143 R1.
- Problem 12 (615 ÷ 8): the answer 76 R 7 is critical because the remainder is large. Some students will write 76 R 5 (mis-subtracted) or 77 (rounded up wrongly).
- ★ A student who writes "76.875" or "76 7/8" is using equivalent representations — strong, even if not what was asked.

Problems 16–26 (Two-digit divisor, clean)

- Two-digit divisors require an estimation step: "how many times does 13 go into 84?"
- Common error: students get the first digit of the quotient wrong, then realize and start over. Look for the trial and erasure marks — that's healthy.
- Problem 19 (575 ÷ 25 = 23): can be done elegantly — 25 × 20 = 500, then 75 left, 25 × 3 = 75.
- Problem 24 (945 ÷ 27 = 35): one of the trickiest. Student needs to know 27 × 30 = 810, then check if 4 more would fit (27 × 4 = 108, but only 135 remains). Quotient: 35.

Problems 27–30 (Two-digit divisor, with remainders)

- Answers: 36 R 7, 30 R 10, 45 R 15, 20 R 22.
- Hardest of the worksheet. Watch for: did they verify by multiplication (quotient × divisor + remainder = dividend)?
- Problem 30 (962 ÷ 47): 47 × 20 = 940, remainder 22. Quotient 20 R 22. A student who got 21 R something has over-counted.
- ★ THE diagnostic question: do they CHECK by multiplying back? A student who self-checks is more advanced than one who just produces an answer.

Question A — Check 246 ÷ 2 by multiplying

- Should write 123 × 2 = 246.
- Strong: shows the multiplication and explains "this proves the division is right because division undoes multiplication."
- Weak: does the multiplication but doesn't articulate the inverse relationship.
- ★ Reveals whether they understand division as the INVERSE of multiplication, not just a separate operation.

Question B — What does R7 mean in 615 ÷ 8 = 76 R 7?

- ★ The 7 is "leftover" — 8 doesn't go into 615 evenly. There are 76 full groups of 8 (which is 608), plus 7 left over.
- Strong: "After making 76 groups of 8, you've used 608, so 7 are left over."
- Weak: "R means remainder" with no explanation of WHAT it represents.

Question C — 800 ÷ 7 closer to 100 or 200?

- ★ Closer to 100. (Actual: 114 R 2.)
- Strong: "7 × 100 = 700, so the answer is just a bit over 100, not close to 200."
- Weak: guesses without checking by multiplying. Reveals whether they use multiplication as a navigation tool.

Question D — Mai: division is repeated subtraction

- ★ Mai is right. 396 ÷ 11: keep subtracting 11 until you reach 0. 396 − 11×36 = 396 − 396 = 0. Answer: 36.
- Strong: counts groups of 11 fitting into 396 OR repeatedly subtracts. Demonstrates the underlying concept.
- Weak: doesn't connect the operations; or shows long division without using subtraction language.

Question E — If 945 ÷ 27 = 35, then...

- 27 × 35 = 945.
- 945 ÷ 35 = 27.
- ★ This is the fact family: a × b = c, b × a = c, c ÷ a = b, c ÷ b = a.
- Strong: fills both without re-computing and explains the relationship between multiplication and division.
- Weak: re-computes from scratch.

Question F — 528 students, 24/bus, how many buses?

- 528 ÷ 24 = 22 exactly. ★ Answer: 22 buses.
- BUT — if it had a remainder (say 530 ÷ 24 = 22 R 2), the answer would be 23 buses (you can't leave 2 kids behind). This is interpreting the remainder in context.

- In this particular problem, 528 ÷ 24 = 22 exactly so no rounding needed. But watch: a student who automatically says "23 buses" without checking whether the remainder is zero is using a memorized rule, not reasoning about the situation.
- ★ THE deepest question on the worksheet — does the student think about WHAT the answer means in the real world?

Patterns of error to watch for

- Quotient digit too small / too big: student under- or over-estimates how many times the divisor fits. Often a sign of weak multiplication fact recall.
- Forgetting the remainder: leaves R off altogether. They may not understand what's leftover represents.
- Wrong placement of quotient digits: writes the quotient digit in the wrong column. This is a place-value error and is critical to fix.
- Subtracting incorrectly within long division: each step requires a subtraction. Subtraction errors propagate.
- Bringing down the wrong digit: classic long division mistake.

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