

Grade 5: Division Accuracy

© ITEM ADAPTED WITH PERMISSION FROM LEARNING HEROES, A PROJECT OF NEW VENTURE FUND. CONTACT LEARNING HEROES, A PROJECT OF NEW VENTURE FUND, DIRECTLY FOR TERMS OF USE

5.NBT.B.6 - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Divide. Check your answer by multiplying. Then write your answer in the box.

$$31 \overline{)8153}$$

□

Solution

Correct if student writes the number 263.

Divide: $8,153 \div 31 = 263$

Check: $263 \times 31 = 8,153$

In this problem, only the answer matters—not how the student calculated it. But if the student takes quite a long time to carry out the division or the multiplication, more practice might be helpful.

If the student can divide $8,153 \div 31$ but doesn't know what it means to check this answer by multiplying, then they might not understand how multiplication and division are related. For example, if we imagine that a fifth-grade class raised \$8,153 for a summer field trip, to be shared equally among 31 students, then each student's share can be calculated by dividing: $8,153 \div 31 = 263$. And if we multiply one student's share by 31, we should end up with the original amount: $31 \times 263 = 8,153$.

Elaboration on Alignment

The basic parameters of the problem are (1) calculating a whole-number quotient with a four-digit dividend and a two-digit divisor; (2) checking the answer by multiplication.

There is no remainder, in order to avoid fractional quantities in the implicit equations $a \div b = q$ and $q \times b = a$.

There is also no context (this isn't a word problem), as the target of the problem is skill in calculation at the grade 5 level.

The numbers in the problem are intended to lower the difficulty of the calculation to fairly moderate levels; for example, the first digit of the quotient (2) isn't hard to estimate when comparing the divisor (31) to the first two digits of the dividend (81); and the first multiplication step in the division calculation is easy to do mentally ($2 \times 31 = 62$, no carrying). And in the checking process, a 1 in the ones place of the factor 31 speeds the calculation along; and finally there is only one "carry" in the multiplication overall.

Learn More

See a digital version of this task at Learning Heroes' Readiness Check:

<https://bealearninghero.org/readiness-check>

Name: _____

Divide. Check your answer by multiplying. Then write your answer in the box.

$$31 \overline{)8153}$$

□