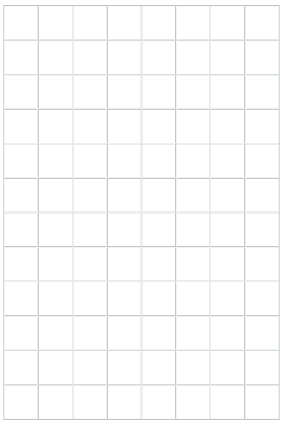
Year 6 - Long Multiplication — Lesson Guide

Step 1

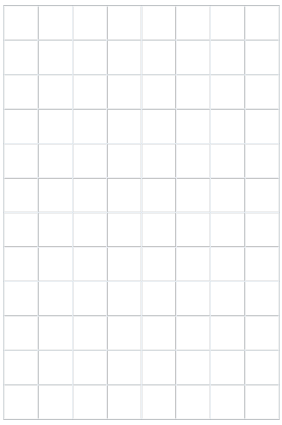
235 × 17 = ☐



First, we circle the multiplication sign so we know to multiply the two factors and find their product.

Step 2

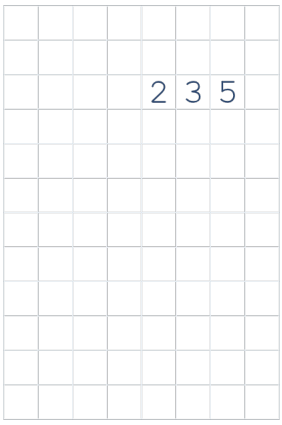
235 × 17 = ☐



First, check whether a mental method would be quicker. Split 17 into 10 and 7. The first product is 235 × 7. The second product is 235 × 10. Add the two products to find 235 × 17.

Step 3

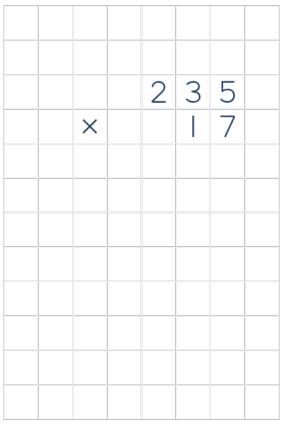
235 × 17 = ☐



The first digit of 235, 2, is in the hundreds column, so we start there. Now, we write 235 in the correct columns, with one digit in each box.

Step 4

235 × 17 = ☐

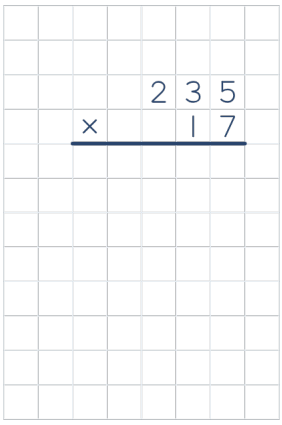


Remember: There must always be a digit in the ones column, even if it is a 0.

Then, we write the multiplication sign on the left. We write 17 below 235, with 1 in the tens column and 7 in the ones column.

Step 5

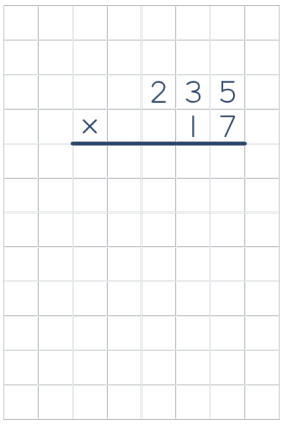
235 × 17 = ☐



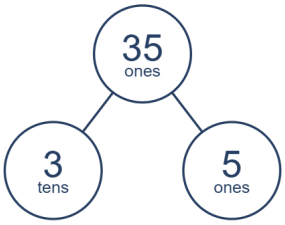
After that, we draw a line below the factors. We leave two rows for the products.

Step 6

235 × 17 = ☐

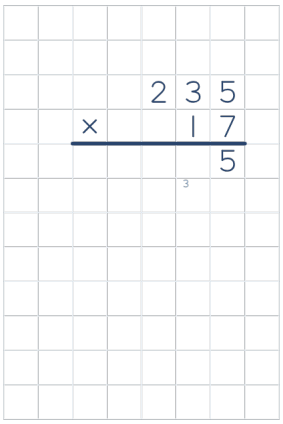


First, we multiply the ones, the smallest place-value column. 5 ones × 7 = 35 ones. As we can only write one digit per box, we partition 35 ones into 3 tens and 5 ones.



Step 7

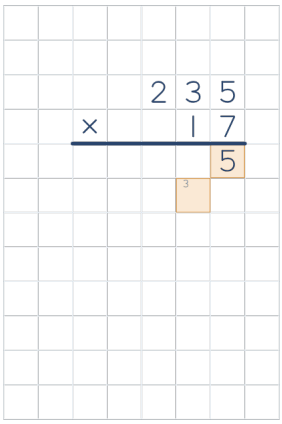
235 × 17 = ☐



We write the 3 tens in the tens column underneath the answer, ready for the next step. Then we write the remaining 5 ones in the ones square of the first product row.

Step 8

235 × 17 = ☐

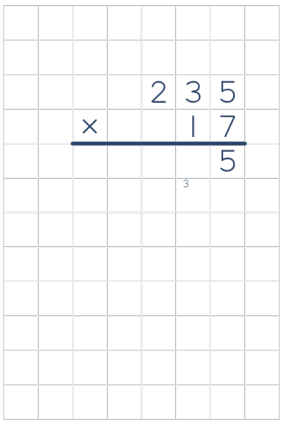


Remember: Check both places. Keep the small 3 below the tens column and the 5 in the ones answer square.

The small 3 below the tens column stands for 3 tens. The 5 in the ones answer square stands for 5 ones. Together, they make 35 ones.

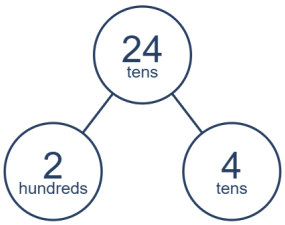
Step 9

235 × 17 = ☐



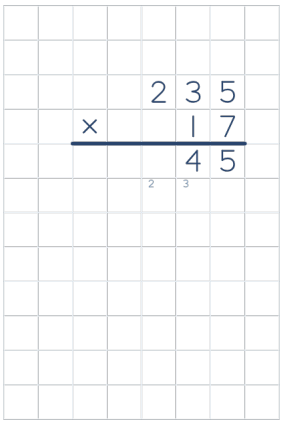
Remember: Each product has its own exchanges. Use only the small exchange digits for the product row you are working on.

Next, we multiply the tens. 3 tens × 7 = 21 tens. Add the 3 exchanged tens shown by the small 3 below the tens column. 21 tens + 3 exchanged tens = 24 tens. As we can only write one digit per box, we partition 24 tens into 2 hundreds and 4 tens.



Step 10

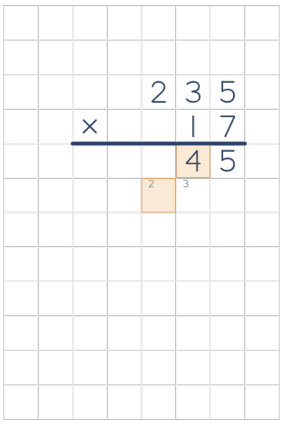
235 × 17 = ☐



We write the 2 hundreds in the hundreds column underneath the answer, ready for the next step. Then we write the remaining 4 tens in the tens square of the first product row.

Step 11

235 × 17 = ☐

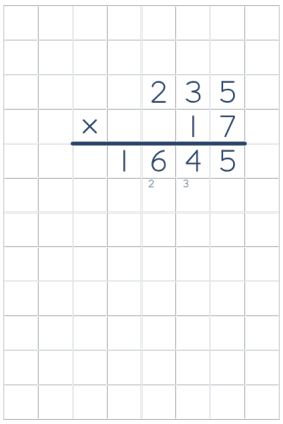


Remember: Check both places. Keep the small 2 below the hundreds column and the 4 in the tens answer square.

The small 2 below the hundreds column stands for 2 hundreds. The 4 in the tens answer square stands for 4 tens. Together, they make 24 tens.

Step 12

235 × 17 = ☐

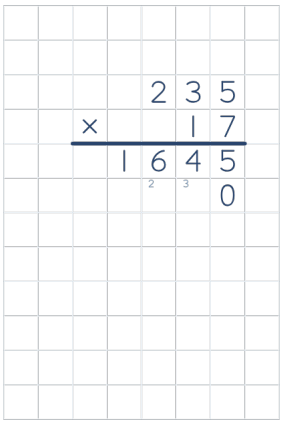


Remember: Each product has its own exchanges. Use only the small exchange digits for the product row you are working on.

Finally, we multiply the hundreds. 2 hundreds × 7 = 14 hundreds. Add the 2 exchanged hundreds shown by the small 2 below the hundreds column. 14 hundreds + 2 exchanged hundreds = 16 hundreds. This is the last column, so we write 1 thousand and 6 hundreds directly in the answer row, with one digit in each box.

Step 13

235 × 17 = ☐

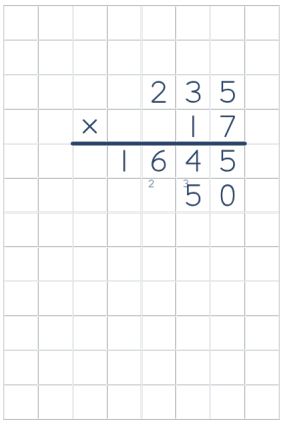


Remember: The tens digit stands for a number of tens. A product of a whole number and a number of tens has 0 ones.

The 1 in the tens column of 17 is worth 10. The second product row is for 235 × 10. Write 0 in the ones square of that row before you multiply. The zero holds the ones place.

Step 14

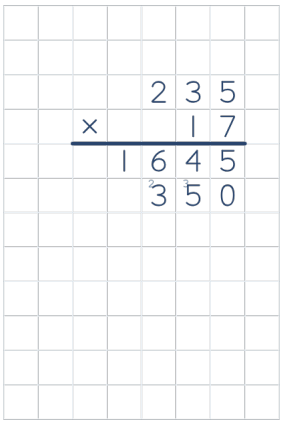
235 × 17 = ☐



First, we multiply the ones, the smallest place-value column. 5 ones × 10 = 5 tens. We write 5 in the tens square of the second product row. No exchange is needed this time.

Step 15

235 × 17 = ☐

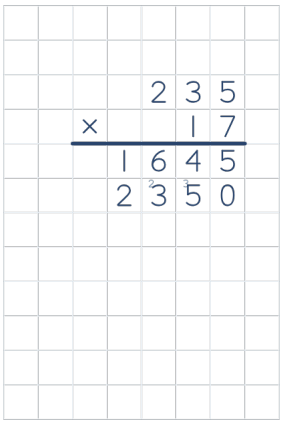


Remember: Each product has its own exchanges. Use only the small exchange digits for the product row you are working on.

Next, we multiply the tens. 3 tens × 10 = 3 hundreds. We write 3 in the hundreds square of the second product row. No exchange is needed this time.

Step 16

235 × 17 = ☐

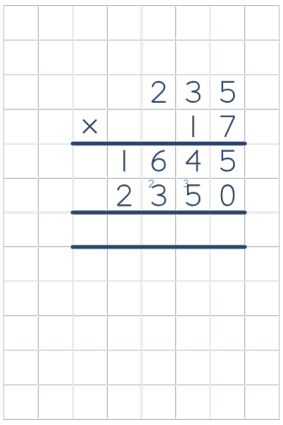


Remember: Each product has its own exchanges. Use only the small exchange digits for the product row you are working on.

Finally, we multiply the hundreds. 2 hundreds × 10 = 2 thousands. We write 2 in the thousands square of the second product row. No exchange is needed this time.

Step 17

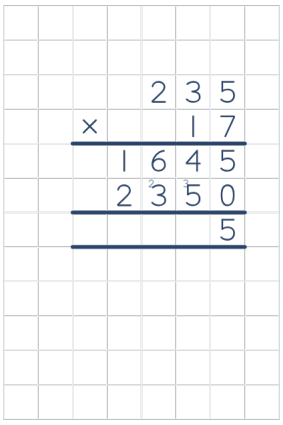
235 × 17 = ☐



Draw a line under the two products. Leave one row for the sum, then draw the second line below that row. Write exchanges below the second line.

Step 18

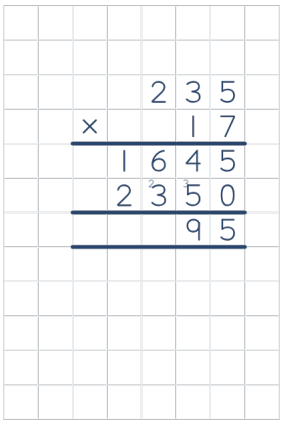
235 × 17 = ☐



First, we add the ones, the smallest place-value column. 5 ones + 0 ones = 5 ones. We write 5 in the ones answer box. No exchange is needed this time.

Step 19

235 × 17 = ☐

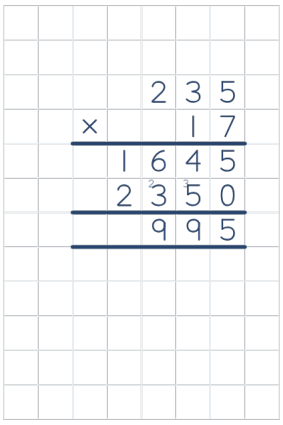


Remember: Check whether there is an exchange to add from the previous column. Include it before writing this answer.

Next, we add the tens. 4 tens + 5 tens = 9 tens. We write 9 in the tens answer box. No exchange is needed this time.

Step 20

235 × 17 = ☐

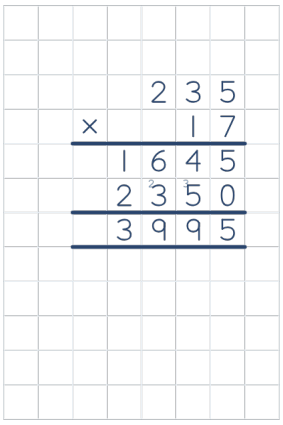


Remember: Check whether there is an exchange to add from the previous column. Include it before writing this answer.

Next, we add the hundreds. 6 hundreds + 3 hundreds = 9 hundreds. We write 9 in the hundreds answer box. No exchange is needed this time.

Step 21

235 × 17 = ☐

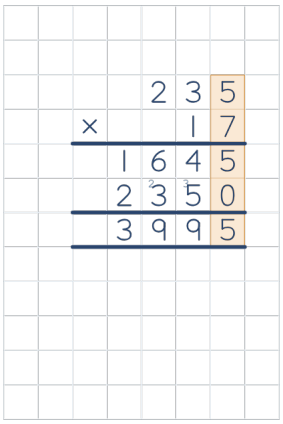


Remember: Check whether there is an exchange to add from the previous column. Include it before writing this answer.

Next, we add the thousands. 1 thousand + 2 thousands = 3 thousands. We write 3 in the thousands answer box. No exchange is needed this time.

Step 22

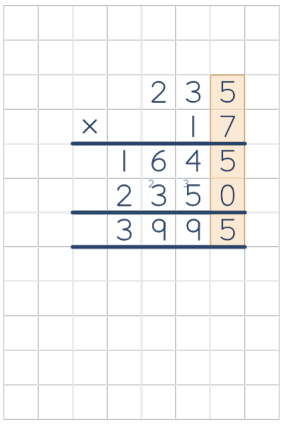
235 × 17 = ☐



Read the first product row as 1,645. It comes from 235 × 7. Read the second product row as 2,350. It comes from 235 × 10, so it ends in 0. Next, we check the sum of the two rows, one column at a time.

Step 23

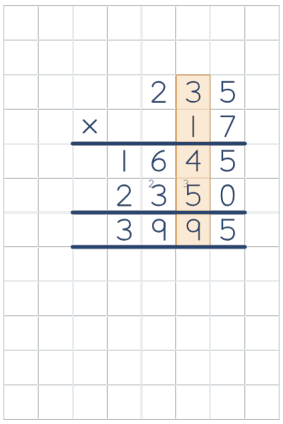
235 × 17 = ☐



We check the ones column of the sum. 5 ones + 0 ones = 5 ones. We have written 5 in the answer box.

Step 24

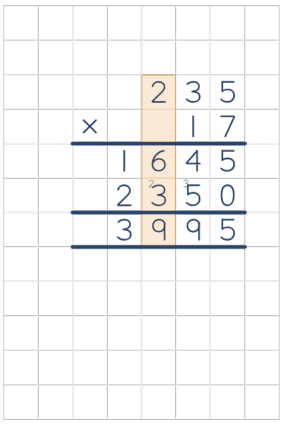
235 × 17 = ☐



We check the tens column of the sum. 4 tens + 5 tens = 9 tens. We have written 9 in the answer box.

Step 25

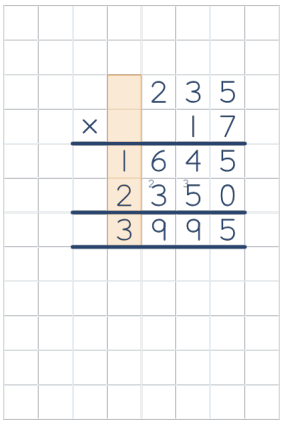
235 × 17 = ☐



We check the hundreds column of the sum. 6 hundreds + 3 hundreds = 9 hundreds. We have written 9 in the answer box.

Step 26

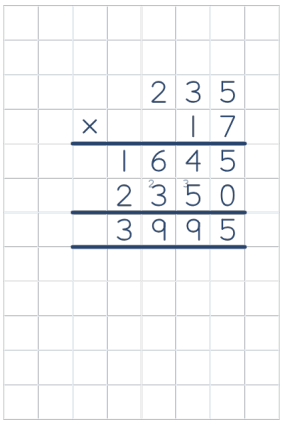
235 × 17 = ☐



We check the thousands column of the sum. 1 thousand + 2 thousands = 3 thousands. We have written 3 in the answer box.

Step 27

235 × 17 = 3995



The product is 3995. Copy 3995 into the answer box. Make sure you copy the answer correctly.