

Written Multiplication

Multiplying big numbers can be tricky, but it's easy if you split the number into hundreds, tens and ones. Just multiply each part separately and add the answers together.

Multiplying by a One-Digit Integer

- 1) Write out the calculation with the big number on top. Line up the place value columns.
- 2) Multiply the one-digit number by each digit of the big number in turn. Start with the place value column with the least value.
- 3) Each time you get an answer of 10 or more, carry the 'tens' digit of the answer to the next column (like you do when you're adding).

Remember:
Integer just means a whole number.

EXAMPLE: Work out 123×6 without using a calculator.

STEP 1

$$\begin{array}{r} \text{HT 0} \\ 123 \\ \times 6 \\ \hline 8 \end{array}$$

$3 \times 6 = 18$

So put 8 in the 0 column...
... and carry 10 to the T column.

STEP 2

$$\begin{array}{r} \text{HT 0} \\ 123 \\ \times 6 \\ \hline 38 \end{array}$$

$20 \times 6 = 120$

Add the 20 to the carried 10.
 $20 + 10 = 30$

... and carry the 100 to the H column.

STEP 3

$$\begin{array}{r} \text{HT 0} \\ 123 \\ \times 6 \\ \hline 738 \end{array}$$

$100 \times 6 = 600$

Add 600 to the carried 100.
 $600 + 100 = 700$

Multiplying Decimals

Your 'big number' might be a decimal.
You can use the same method to multiply — but with a clever twist.

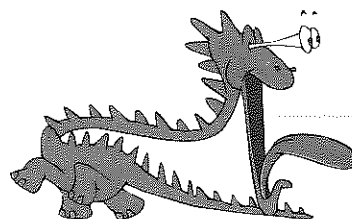
EXAMPLE: What is 29.3×4 ?

It would be easier to do 293×4 . Just use the method above. You get 1172.

BUT 293 is 10 times as big as 29.3
So the answer to 293×4 will be 10 times too big.

It's always a good idea to check your answer with an estimate.

29.3 is almost 30, $30 \times 4 = 120$
See page 31 for more on estimating.



so divide by 10

$$1172 \div 10 = 117.2$$