

Chapter 12 - Written Methods for Multiplication and Division

Short Multiplication 4 minutes and 28 seconds

Short multiplication is a routine written algorithm for multiplying by a single digit. I shall work through a couple of examples with no frills, just straightforward context free arithmetic. First example, I have three hundred and ninety-six to multiply by eight. We set it out like this, the answers going to go down here. We have the hundreds and the tens and the units or ones set out in columns. It's useful to have an estimate in mind, three hundred and ninety six is nearly four hundred. Eight lots of four hundred would be thirty-two hundred so I'd be expecting an answer round about three thousand two hundred.

Here we go then. Start with units eight times six, forty-eight and we carry the four tens from the forty-eight into the tens position leaving the eight in the answer in the units column. So, that's the forty-eight dealt with eight sixes now we have eight nines, seventy-two. That of course is seventy-two tens. Eight nines are seventy-two plus this four down here that makes seventy-six tens and we carry the seven into the hundreds column and write the six tens left in there so this is seven hundred and six tens, seventy-six tens. Now we multiply the three hundreds by eight, eight threes are twenty-four, add in the seven down here and we have thirty-one hundreds, which is three thousand one hundred and sixty-eight. Here's the answer and that's not far short of three thousand two hundred as we were expecting.

My second example is four thousand and forty-nine and I'm going to multiply that by six. Set the question out in the standard way, might be helpful to keep track of where we are, thousands, hundreds, tens and units. We start in the unit's position, multiplying the nine units by six which gives us fifty-four. We carry the fifty that's five tens into the next column. Now multiply the four by six, six fours are twenty four, add in this five and that's twenty-nine tens and we carry the twenty as two hundreds into the next column. Now we have six multiplied by zero, which is zero. Add in the two that we carried, to get the total of two hundreds in the answer and finally we have this four

thousands to multiply by six which gives us twenty-four thousands in our answer there. So there's the result, twenty four thousand, two hundred and ninety-four. Does that look about right? Well do an estimate again, the number we were multiplying was four thousand, forty-nine, just a little bit more than four thousand and four thousand multiplied by six is twenty four thousand so we'd expect an answer just a but more than twenty-four thousand and that's what we've got.