

Division

Short Division (hundreds, tens, units divided by units)

$$291 \div 3 = 97$$

$$\begin{array}{r} 97 \\ 3 \overline{)291} \\ \underline{27} \\ 21 \\ \underline{21} \\ 0 \end{array}$$

How many 3's are in 291? First we ask: How many threes in 2? None, so we move the 2 hundreds into the tens column. How many 3's in 29? The answer is 9 with 2 tens remaining, which we move into the units column. How many 3's in 21? The answer is 7. So, there are 97 threes in 291.

Long Division (hundreds, tens, units divided by tens and units) - chunking / repeated subtraction

$$\begin{array}{r} 23 \\ 24 \overline{)560} \\ \underline{480} \\ 80 \\ \underline{72} \\ 8 \end{array}$$

Answer: $560 \div 24 = 23$ remainder 8

How many 24's are in 560?

I know that twenty 24's are 480, so I subtract 480 from 560. This leaves 80.

I know that three 24's are 72, so I subtract 72 from 80. This leaves 8.

There are no 24's in 8 so this is a remainder (left over)

Vocabulary

Add: altogether, more, plus, make, sum, total

Subtract: take away, minus, how many are left?

Multiply: lots of, groups of, times, multiple of, repeated addition, array, multiplication

Divide: share equally, group in, divided by, divided into

$$1 + 3 = 4 \quad 10 - 7 = 3 \quad 2 \times 5 = 10 \quad 12 \div 4 = 3$$

These are known as a number sentences or calculations, (not sums).

Product: the answer when multiplying two numbers.

Divisor: the number you are dividing by.

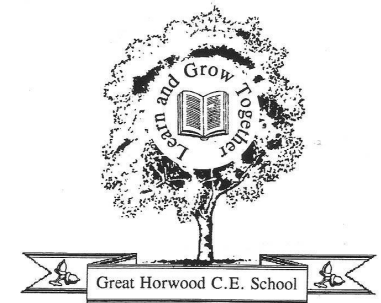
Quotient: the answer when you are working out the answer to a division calculation.

Remainder: what is left over and cannot be divided by the number you are dividing by.

Chunking: subtracting multiples of a number.

Factor: a number that you multiply with another number to achieve a total.

Great Horwood C.E. Combined School



Mathematics Calculation Methods

Years: Five / Six

Addition

The column method

This is the column method that parents are more familiar with.

Write the numbers being added together underneath each other with the tens in line and the units in line.

Draw two lines underneath the numbers.

Add the units together, write the units total in the units column under the first line and carry any tens underneath the second line.

Add the tens together, including any tens carried from the units total, write the tens total in between the two lines.

$$\begin{array}{r} 47 \\ + 76 \\ \hline 123 \\ 11 \end{array}$$

Subtraction

The column method

$$\begin{array}{r} 61 \\ 74 \\ - 27 \\ \hline 47 \end{array}$$

Write the number being subtracted underneath the number being subtracted from.

Carry out the unit subtraction. If the units being subtracted is larger than the units being subtracted from then you take one of the tens from the top tens number and put it in the units column.

Subtract the bottom tens number from the top tens numbers and write the answer in the tens column.

Of course this method can be used with hundreds, thousands and decimal numbers.

Multiplication

The grid method

This method works for any multiplication and when children are confident using it, it a reliable method.

$$\begin{array}{r} 20 \quad 4 \\ 10 \quad 200 \quad 40 \quad = 240 \\ 2 \quad 40 \quad 8 \quad = 48 \\ \hline 288 \end{array}$$

Partition each of the numbers in the multiplication into tens and units.

Write the first number of the multiplication, partitioned into tens and units into the top row of the grid. Write the second number of the multiplication partitioned into tens and units into the 1st left hand column of the grid.

Multiply the tens in the top row with the tens in the 1st column, write the answer in the box where the tens meet.

Multiply the units in the top row with the tens in the left hand column, write the answer in the box where the units meet the tens.

Multiply the units in the left hand column with the tens in the top row, write the answer in the box where they meet.

Multiply the units in the left hand column with the units in the top row, write the answer in the box where they meet.

Add together the totals in the second row.

Add together the totals in the third row, then add these totals together. This is the answer.

Long Multiplication

This method can be used to tens and units by tens and units and to multiply hundreds, tens and units by tens and units. It is a progression from the grid method.

$$\begin{array}{r} 56 \\ \times 27 \\ \hline 392 \quad 56 \times 7 \\ 1120 \quad 56 \times 20 \\ \hline 1512 \\ 1 \end{array}$$

Multiply 56 by 7, equals 392, write this below the line.

Multiply 56 by 20, equals 1120, write this below 392.

Add together 1120 and 392, makes 1512.

Multiplication

Short Multiplication

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \\ 5 \end{array}$$

Multiply 8 units by 7, equals 56, (write the 6 in the units column and write the 5 tens underneath the line in the tens column).

Multiply 3 tens by 7, equals 21 tens. Add the 5 tens, makes 26 tens. 26 tens is 2 hundred and 6 tens, write this between the lines in the hundreds and tens column.

Factors method

$$56 \times 27 = 1512$$

$$56 \times (3 \times 9)$$

$$(56 \times 3) \times 9$$

$$\begin{array}{r} 56 \\ \times 3 \\ \hline 168 \\ 1 \end{array} \qquad \begin{array}{r} 168 \\ \times 9 \\ \hline 1512 \\ 67 \end{array}$$

If you know your times tables you can change a number into a multiplication. 27 is made by 3 times 9. Instead of multiplying 56 by 27, multiply 56 by 3, makes 168. Then multiply 168 by 9, makes 1512.